

20557A US Sequence Listing as filed  
SEQUENCE LISTING

<110> Warner-Lambert Co. LLC  
 Baron, Scott  
 Hidayetoglu, Debra  
 Johns, Margaret  
 Offord, James  
 Su, T-Zhi  
 Su, Ti-Zhi

<120> ANIMALS AND CELLS CONTAINING A MUTATED a2/d1 GENE

<130> PC20557 PCT

<150> 60/518,110

<151> 2003-11-07

<150> 60/462,634

<151> 2003-04-14

<160> 31

<170> PatentIn version 3.1

<210> 1

<211> 22

<212> DNA

<213> artificial

<220>

<223> Synthetic oligonucleotide

<220>

<221> misc\_feature

<222> (1)..(1)

<223>

<400> 1

gattgatcta tatgatgtac gc

22

<210> 2

<211> 19

<212> DNA

<213> Artificial

<220>

<223> Synthetic oligonucleotide

<400> 2

ccccaagcaa agtagttgc

19

<210> 3

<211> 348

<212> DNA

<213> Mus musculus

<400> 3

gattgatcta tatgatgtac gcagaagacc atggtatgat gttttgacta cctctaaaga

60

tgcgatcaat aaatgggggt tctatcattt gttaatacat tgagggggaaa cttcccctta

120

20557A US Sequence Listing as filed

gtgggatggg tactctctta tatagaatgc tgtgatactt tcaaaatata aatacaatta	180
atgacaaaatg aaaatgatgt gtttgagaag gaaatctctg tgaatactga taaaatgatt	240
ttcagactca attcaaatgg attgctgtaa gtcttctgtc cagtttttagc tttcagtcctc	300
ctttagctgg cagggctttt cttcaaagag caactacttt gcttgggg	348

<210> 4  
 <211> 16375  
 <212> DNA  
 <213> Mus musculus

<400> 4 tgctcctcaa gtgctgggat taaaggccca tttgaagaca ttgctgactc taggaaattt	60
gctattataa taagagtatg caggcagcca tacttggtgg tacaaatgaa cacacactca	120
caaaccacata catacatata gagagagaga gagagagaga gacagagaca gagacagaga	180
cagagacaga gagagaaaga gagtgagaag gggggagaaa gcctagagct tcagcaaaaa	240
gagaaaggta aatgagtaat ggggggattaa gcaaagaact aagctttatt atagagatgt	300
atgcaagtgt caaagaataa aggataggag aaacaagact tctctagtct ctcagttgtc	360
tgtctacacc tgaggcagag gttgctagct gctcacaat tctgtcatcc atttataagt	420
gtccttttga aatgatgact tgactgagga cttaattttt ttaaatttaa ttttattagt	480
aattcatttt ttacactcca tattccattc catgcccctc cccatccaac ctctgactgc	540
tccacatccc acacctcctc cccacctcac cctatctcca cgtgaatgct cccacccccca	600
ccccacctga tctctaaact ccctgggtcc ttcagtttct tgagggtag gtgcatcatc	660
tctgaatgga cacagacccg taagtcctct gctgtatgtg tgttgggggc ttcatatcaa	720
ctagtgtatg ctgtctattt ggtgggtccag tgtttgaaag atcttggtga tccagattaa	780
ttaagactga tggctcctct acagaatcac ccttttcctc agcttctttc agctttacct	840
aaggcctgac actattactg aggctatgga atgctcacia aaagggacct atcatgactg	900
ccctcagaaa gaccaacaa ggaactgata gagtcagata cagtcatttg caccacaacca	960
aggactgaag cagccgagga cttaattttt taaagtccct ctgtatctgt ggtaccaga	1020
ggcagtccac actaagaacc atgaatgaaa gaagtctatc acttcaagac tcacactgca	1080
atgacttggg tgtacctcat cctcaatttt tttctagctc tagctcttgg gagaccctgg	1140
gactgaaaga ctgtcagaaa caataactct ggctgtccta gatctctgca taattgcttg	1200
gaacattttt agaatttatc tgtttgtctc tctatctact gtctgtttgt ctgtatgtct	1260
acctatctat gtacctagct atatgtgcat tgctgtttgt tttgagacca ttctcaatat	1320
ggagccttgg ctggcctaga aaccaaatta acctcaaact caccagtctc tgctaggcac	1380
atgctggcat tcaaaccac ctgcctctgc taggcacatg ctgggattcc aggtgtgtat	1440

20557A US Sequence Listing as filed

caccacactc	ccccttgaag	taaaatttat	gatacacatg	aatagtgatg	cctaaactgg	1500
aaatcttaga	tgacaaataa	cagtactgtg	ataagacatg	ggatatttgtg	atcatacttt	1560
gaggcatttc	ctgttatcaa	aactaataca	gattagtctt	cctttttttt	ttttttttga	1620
gtttttccaa	gaaaaatcaa	aatctgaaga	agtcagccat	tttcctttct	aaatcctctg	1680
ggacttcagt	ctgagtataa	tatccccact	cacttaagaa	gaccaaccct	ccctgcccc	1740
acaccgcgc	tggaaactgtg	aagcaaacta	ggagctacgg	agattctatt	ctgaaataga	1800
actctggata	gtagtatgga	atctattctg	gatagcaact	gaaagtctctg	ctaggtatat	1860
tagacaagtt	gagtcaacta	ggctacttcc	tttaaaagct	agctagagtt	tattgtgttg	1920
gaatgtaaca	tgtatctaata	actctgcagt	acatgactgg	gccaagctct	gtatcagtgg	1980
cattctgtct	gccagaaaat	atccgcagtg	actattcaga	catttttgga	gtctataaaa	2040
tgtactgttt	taatttttagt	aagattaaca	atgtgaagtt	cctagagtta	aaaaaaaaagc	2100
aaaacaaaac	aaagaaacaa	acaaaaaaca	actttgcaca	taaccaagta	gaagtgcaat	2160
tatctgtcac	ttgaagtggg	gtttctacta	atagacatgg	ttctcaacaa	atgaaatgaa	2220
aaatggatac	tttttatcat	taggcaacat	tcataaaaaa	gggggcatgg	aagggaactg	2280
caaccctata	ggtggaacaa	cattatgaac	taaccagtac	cccggagctc	ttgactctag	2340
ctgcatatgt	atcaaaaagat	ggcctagtcg	gccatcactg	caaagagagg	cccattggac	2400
acgcaaactt	tatatgcccc	agtacagggg	aacgccaggg	ccaagaagtg	ggagtgggtg	2460
ggtaggggag	gggggggagg	gtatggggga	ctcttgggat	agcattggag	atgtaaatga	2520
ggaaaatacc	taataaaaaa	tatatgtaaa	aaagggggca	tggaaatgcg	catgcctcct	2580
taagattgat	ttccagaaca	tgatgtttaa	gttctgaatt	tatgtacagg	tcctactccc	2640
tgaccaaggg	gttgagagac	tgctggagta	cactctacat	atcatgtaaa	gtggagtaat	2700
cctgcagtgg	acttagtaga	agacatattg	atagcttggt	tcttttttgg	tctggggaaa	2760
catttccata	aatgatcatt	atcgctgtca	atgaaatgat	ccattcagaa	atgagattac	2820
cacactatgc	tgtttctaaa	accccctctt	cagccatcct	taagtcttaa	tggaacacaa	2880
aagggttcatt	taaaatgaaa	agtggtttcc	ccttttccaa	gatttgagaa	tctctcattt	2940
cctttccaga	agtctagttt	tcctgtgaat	ggttataaag	cattatttga	agggactgca	3000
gaacatagtc	attttttctt	tgctattttta	ttttccataa	ttttgaactt	gaataaatag	3060
cataccactt	aaataccatg	atgagatttt	atacactaag	tagtaatatc	acagaagaat	3120
ttatattggt	taatttaacc	ataatataaa	tactctaact	tattattact	gtgttttact	3180
tcaggaaaac	ttatatgaga	ttaacagttt	taaatatatg	ccgtctaaga	ttagcaatgt	3240
taataaaaatt	taatgtcctt	gtccttaatg	taaattatag	cattttaatt	ttcttggtgc	3300
tttaaagaaa	tgtataaatt	ttatggagca	tattaattcc	tattagtaga	tttttattta	3360

20557A US Sequence Listing as filed

gcaatccttag	tgaaaacaaa	agtttcatac	taatgttctc	tataaagaat	gaaggacatt	3420
gctcagggag	agagagttaa	aatatatgca	aacatgaaga	cttaccaaag	tgacagatttc	3480
tcaacttcat	gtgcacattt	tgtagggtgt	ttgactcaga	aggtagactg	tatcctcaga	3540
acaagctgga	tgcaagagta	gccatattaa	tgagctctgc	atttgattgt	gactgctgct	3600
gtagtgaagc	agggtggagga	gccatgcaga	atgatctgaa	cttcagccta	ggacaacccat	3660
gtgtactgac	atgtgctgag	ccatcacatg	caaggcagga	aaataatcaa	caaacatcac	3720
aatggggaga	gtgaaaacat	ttatactttt	aaaaatccaa	tctaattcaa	tcaattatga	3780
gtcattgttg	agatctttta	actcatggct	gttggctaga	cattggctat	ggaatgtaat	3840
cacagtctta	tcagctctgt	gcatttctgt	tagctttgga	aaaatcaaaa	gggtcaagag	3900
agaaagtaaa	ccatttggac	cagggaaatt	ttattgttaa	gaaatagtta	ttcactataa	3960
cttaggagat	ggctcagaga	gtaagacgac	tctctgtaca	accataagaa	ccggagttca	4020
gcctcccagc	ataaaaaatct	gggtgtagtt	gtaaccagtt	atcccagaat	tgtgggaggg	4080
gctgaattaa	aaggcttgct	ggctcccagt	aaatagtgt	ccaatagtag	attcaatgta	4140
ctactgtggt	ctgcaggagt	gctaagatgt	atacctacac	acacatttga	gttttcacca	4200
ccaatatata	ccacaaatca	acacatatca	taatggggaa	aagaaaaaat	atactgtaaa	4260
aaatccaatc	taactcaatc	aattatcaga	gtatcagagt	cattgttgag	aattaagaaa	4320
cctaaggcta	aggacatggc	ttgggaagag	aacattaaaa	tgtatgcaaa	catgaagact	4380
tgacaggggtg	cagatcccta	gacttcatgt	gaacattttg	taggtgtgtt	ggctcagaag	4440
gtggagacca	gtatcctcag	gatgagaagt	tttattagaa	ttaaagattt	ccaaaaaaaa	4500
aaaaaaaaaa	aagaaagcac	aaataccatg	tatatgacaa	ggtagtctaa	tctatagcta	4560
cctatgagaa	tgaaataaag	tcataaagga	gatattaatg	gcccataact	ctgacctaag	4620
atctgatcct	cttctagaga	catggatata	ttcttaaaaag	gcaggtaagt	cactaggagg	4680
ccattttggt	ggaatttgct	agaaaatgac	tctttggtgt	ttctaattgt	aaccagaaat	4740
tgtcgtctac	aaaaaatata	taaataaaaa	taaaacaata	aaaatcgtga	gagaggtcct	4800
atagatgaga	actcatgtca	gtaggctatt	gttggccatt	gggatcgtag	tgagagtttca	4860
gaatcttcca	gaacaaggag	aaatagggac	tgtataaaac	aatggtggct	aagtctaaag	4920
aaccgctatg	tatggcagca	gacagacacc	agataatctg	ttcataggca	gagcccatga	4980
gctaacaagt	gacatacctt	aggaaatata	cctttctcat	tcagtgtctt	gcatcatctg	5040
tacataatat	atggaactgt	gctaattact	aaaaggaaag	tattgaaaat	ccccagatat	5100
tcaatcaaac	aaaccaacca	aagtgaacaa	tttcagttga	gaggtaatga	atacatatat	5160
agaggcattg	tattaaaatt	tacatataat	ttctttaaat	tattttatta	ttattgagat	5220

## 20557A US Sequence Listing as filed

attaactgat	attaagagta	attgttgaaa	gggaatcaat	atatcatttc	acatacttgt	5280
tgcttaaatc	taagactatt	ccaaggaaaa	gaatgatatt	tatatcattg	acagcacgga	5340
tgaaaactga	actcatttta	aagaaataag	tttaatggat	gttatattag	ctatgtcagt	5400
aattggttct	ttggggagaa	ctatatTTta	acttacagtt	tatgcaaata	tgattagtca	5460
tttgaaatga	ataagtcatt	tcataatata	gctatgcata	taaaatttcc	tagtcaagaa	5520
gggcttctgc	ggttgatat	gtattttgac	atgctttaat	tggcccaatt	atcttagttg	5580
gataagcatg	gctcttgcaa	agaatctcca	taattttcat	gattttctca	taaaaagg	5640
ggggggtag	atcatagtgc	atttttcatc	tgagtcaggg	attttcttta	gtcacatgta	5700
taaacatgct	tgatgtaagg	gaattctgtg	gcataaaatt	gtcatgcagc	ccatgggtgt	5760
tgacaagtct	tcattaggtc	cagcctgtgg	atgaaagtaa	tgagttccag	agcacttta	5820
tctaagtaaa	tgtagtctta	attagaataa	gtatgaatca	attacctttc	aaaatcaata	5880
taacaactca	agaaggTTTT	TTTTgtttg	tttaactttc	taatttcaga	aaaatgtaaa	5940
ggtttcaaac	taatagatta	ttgactttct	gtttaaatta	ttttacatca	ttcaaataaa	6000
tttgcaaaaa	ccaaataactt	tttagtatat	gtgctgccga	agcgagcaca	aaaaccaaat	6060
actttttctg	ttatgtttta	aaaatgatata	ctatctatta	aatgcattcg	atgtatttct	6120
atctcagcac	actacccttt	gcctttccaa	gtctttcaag	acctctttcc	ctttagggtc	6180
ctcctttcca	cttgatgtgc	acttggtgcc	aattaaagat	gtccttatgt	gtgtgtatat	6240
agcaatctat	gtgagcatgg	gcagtcttcc	aagcaagtta	ctacatctct	gaagaaagcc	6300
aaccaactc	accttcccct	aataaccctc	ccctgggccc	tcagtgtcat	ctctctgctc	6360
cgggctagac	tgtggactga	cttgatgatg	tgccgggtctc	agagctgtag	atgtcatgag	6420
gtcctgagt	taacacttgt	ggaagacgct	gcttgacagc	agtcctcccc	attccctagc	6480
tcttacagtc	agtgcaccac	ctcttcagtc	atccttgagt	gtgagaggga	ggcagtgtga	6540
caaagatagc	gactttgggg	cttgaaactt	caccatcatt	tattccctaa	actttgacta	6600
gctgtgggtc	tctatattaa	tgtctgtcca	ctataaaaagg	aacttctcta	atgaggagtg	6660
aaggctgcac	caagccacca	agaatctgta	ttgacatgag	tttaatagaa	aaagagaatt	6720
aaagttaact	ttaattgtag	cttaaccttt	tatgtataat	tttaatctga	aactgaacat	6780
ccaatttaaa	gtggtccatt	ggaaaagata	gttgataaat	tatttcaata	atatacatta	6840
tttattaagc	acgtgactat	gaagttcaca	accatgctgc	tctgtgatag	aagctaaaga	6900
caaaaaatat	ttttatggga	gaaaatatca	ctgttttagtc	ttggctaacc	tgggaattccc	6960
tataggccaa	tctgtctttg	gactcataga	gcctctgctg	tccaagtgtc	gtaatcaagg	7020
gcatgtgcc	tcatacctgg	gaaaaacagt	cctgcatata	gtcttgata	tacagtttgc	7080
attgaataaa	aacagagtgg	gcaattaatt	gaaagcacca	cctttactag	ctgcagcaac	7140

20557A US Sequence Listing as filed

atcttctgtc	aaagaaaagc	atctcaacca	aaccctgtg	tctggagctt	gttcggacaa	7200
tatagggaga	gggaattggc	ttgtgttggg	atttcttttg	tactgctgtg	ttactttgca	7260
attgtaaaaa	aaaagaaatg	acataaaggt	gggtgtttat	atttgaatat	tcatataggt	7320
aaatggaatt	tggtttatct	tttattttgt	tattttaagt	tgccatttag	ttttgtaaat	7380
agatcttatt	gtagaggtg	gtggtatttc	tcatgccatg	gcatgcacat	ggaagtcaga	7440
ggacttgcca	atactctcct	cctgccagga	tctccttctg	tgtgattaga	gatggaattc	7500
atcttttcgg	tcttgggtctg	agcacctgaa	ctcactaagg	catcacctaa	gcccagttat	7560
acttagtact	ttggcttagt	ttctctgata	tactttgttt	ttcagcttct	ccatgggtgg	7620
ataatagtag	aactccaaac	aagattgatc	tatatgatgt	acgcagaaga	ccatggtatg	7680
atgttttgac	tacctctaaa	gatgcatca	ataaatgggg	gttctatcat	ttgttaatac	7740
attgagggga	aacttcccct	tagtgggatg	ggtactctct	tatatagaat	gctgtgatac	7800
tttcaaaata	caaatacaat	taatgacaaa	tgaaaatgat	gtgtttgaga	aggaaatctc	7860
tgtgaatact	gataaaatga	ttttcagact	caattcaaat	ggattgctgt	aagtcttctg	7920
tccagtttta	gctttcagtc	tccttttagct	ggcagggctt	ttcttcaaag	agcaactact	7980
ttgcttgggg	aaaagccctc	acatagagat	ggcatggagt	cacagacagc	ttgcctctgg	8040
cagtgaacta	atgggaaactg	gccctaagct	aacagtgctg	cctagatact	tccataaagt	8100
ttaggtttta	ttatttctcc	ccaaagtaat	ttattttgtt	tgacactatt	aacgtaattc	8160
atcatcctaa	ttcaaaacac	aagaaaatat	gaacaatata	tgtttgaact	ctctgggaga	8220
caactatgaa	acttcatgta	tttttattat	tgattggatt	ttgagtgtat	aaaagttata	8280
cttaaattgt	aaatatacta	tttttaatga	gttcacatat	acaacatggg	accttatact	8340
ctgttctttt	catattaatt	tttgagtatg	tagtaatgaa	aaggaatact	taaaatccct	8400
ttaataaagg	ctatctgttc	acttatttaa	gaaagtcctt	attgtgtttg	tgcatgtgctt	8460
ccaacttctg	gtattttcac	acaaattctg	tgacagcatag	tggtgggtga	aagaacattt	8520
agttatggct	ttcaagtgtc	ctgttgagta	ttcaataggt	atttgcatac	acacaacctt	8580
aagtaatagt	taccaatgta	ttagtgactt	ttaagtgtcc	ttctgaatag	ccaatagcaa	8640
tatacatgaa	caaaccttg	aatactatta	ataatatttc	tctagtctat	tatttaatga	8700
aagcaaatac	tatgttataa	catagtgtga	cttaggaaac	ggtcatttta	tggaactgt	8760
aggagcgagg	tgctactcat	ctgaagcaga	cactttgcta	atcttttcat	ctgccactga	8820
gcagcacacc	aggacaatgt	gttaagatgc	tagacatgag	ctgggttgtc	ttgcatgggc	8880
aaacagtgga	gctttgccta	ttgggtctgaa	tacagagcat	ggagtgggtt	gcaggcaagg	8940
cgctggagtg	ctcattctac	aaataatccc	aagtagtagc	agctgtgctc	cgaaatgctg	9000

## 20557A US Sequence Listing as filed

agaatgaatt	ggcttgcttt	ctgtctgttg	ctgggtcact	tgagtcagat	gcagcccttc	9060
ccactgtgga	aggcagatgc	ttaatccctt	caatttgttt	tgttcccctc	cagtctctgg	9120
ctaagcaata	tgtgtcttct	ctttgttcct	tttctttctt	tttcttttct	tttaaattac	9180
tttgctgcta	tcaaatttag	ctctctacaa	gcacttaact	tcctgcctaa	atctcccga	9240
gtgtgtat	caaatacaga	gaatcagaga	tgtgggttaga	gtttggaatt	tacattttaa	9300
ctgtttctct	ggtgattctt	ggatgccata	aatcttttag	agtttctgct	tcataattct	9360
ggtaatagta	atatccatta	cctgggttca	gtttttaact	tacctgttat	atttcctttt	9420
aatttgcttt	atcttaaggc	tttttgacta	cttatctctc	tgtgtttatt	tattttttgt	9480
atttaaaaat	gtcataat	gttgttcact	acaactgaaa	tgtcagcaat	cagaatttag	9540
gggccgggca	ttgtggcata	cgtctttaat	cccagcactt	gggaggcaga	ggcaggcgaa	9600
tttctgagtt	caaggccagc	ctggtctaca	gagtgaagtt	caggacagcc	agggttatac	9660
agagaaaccc	tgtctcgaaa	aaacataaat	aaataaataa	ataaataatc	ggaatttagg	9720
attgttcctt	cttcagaagt	aaataatcgt	ttggaaagta	attttagtca	ctgcttacat	9780
taaatttcat	ctttattttt	ttcataaatc	cctagaaact	atgcattcaa	aagccataat	9840
gtattaatat	ctctaattgg	atcttaaaata	ctcttttcaa	aaaaacattt	cagagtatgt	9900
ttaaagagc	attgtttact	atggtgtaat	agaatgggac	tttgttttaa	tcatatcata	9960
tttcagaaat	gtataaatat	gaacacagca	aatgtcaatg	ttatacatag	aggaaaaggc	10020
aatgttttgc	tggttctgtt	tcagggtacat	ccaggggagct	gcatccccc	aggacatgct	10080
cattctggtg	aacgtgtgag	tagtgcatga	gacatttgta	ggtaataata	ggttggtggg	10140
aattagaagt	gtatgaaagt	tgggataaca	aagaatcaat	ataatgggtg	tatatctaga	10200
aaaacaagcc	aaacttcgat	attaacaatt	gattgttgac	ttggctcaat	cagtaaagtg	10260
cttgttgcac	aagaggaagg	tctgagtga	tagctctggc	ttttacacga	aaacaattat	10320
ataataaggg	agcagtgggt	gtgcctgtaa	tgccaattgt	gaatagtagg	agagaagaag	10380
tgccccaggg	ctcactgatt	agacagtcta	agggatcagt	ctgttctggg	attactgtga	10440
gacccagta	ttaaagaata	tggtagagag	ccacagaaga	tacctggcat	tgaccctga	10500
catccacaca	catacactca	cccaccatt	ccacaccca	catttatgca	aatgggcaca	10560
cgaagacaat	aacaaaacca	gaaagatcat	tctattgaaa	atgtaaataa	tgtatctgta	10620
tcaaaactggg	aaattatact	attctaaaag	ctaattgagat	cacttttggt	ctttatgata	10680
gtgtttgata	aatgacaggt	gaatgacaca	cggaccatt	tgtctgtttg	taggagtggg	10740
agtgtgagcg	gattgactct	gaaactcatc	cgaacatctg	tctccgagat	gttagaaacc	10800
ctctctgatg	atgatttcgt	gaatgtagct	tcagtgaagta	tggatggctg	ctccttctgg	10860
aatccgcct	gcctgtctcc	ctacatcatt	acatactggg	ttgtgttttc	cttcgatggg	10920

20557A US Sequence Listing as filed

ctgaggcatt	gtcagagtgc	tataagctgt	cttactgatc	tagcctgtat	tgtcctttct	10980
gagatgctta	gcattaccac	cactgaagta	atgaatactg	aatgaaaagc	attccgtccc	11040
ttccctcaaa	ggagcccaca	tgggtactgt	gagcccttcc	acacacaggc	acctttggga	11100
catcttatga	agtagcatga	ttgaactggt	aattgcttgt	agctgggttat	actcatttgt	11160
gggctggaca	gctgacctta	ttgcactgag	tttttcctaa	cagaagaaag	taaaggggaa	11220
agtgaataag	ctgggaatta	tcttagacct	tttcctagct	aggaagtact	ggccttgctg	11280
caaattggcc	aagatgtgcc	atgtctcatc	ttgatctatg	taatttaggg	acccaatttc	11340
atggccattt	tctagtgcag	gaaatttcat	atgtgaagtg	gttcatttat	ggagatgtgg	11400
ctgaaggagc	agtagatttt	ggtggtgttg	attttttattg	aacaaaggag	aatagatctg	11460
cttctaataa	tacttgggta	gggtgaagtt	aaagtctaca	actgattgtc	tcactttcct	11520
ggaattgggg	gaaacagaaa	tctccataat	cctaattcct	ctaatgatga	tggaatggtg	11580
atgctaagat	ggagaggatt	tatctctaaa	atgaaatcac	taagatagtc	ctgaatgctg	11640
gtatggataa	agagtataga	accactatg	gataatgtaa	gacttcctgg	atagtgtgtc	11700
acgatgtata	attctcaagg	agaataattt	taaaatattc	tatagttcaa	ataaattcag	11760
atggaacctt	gtcaaaactct	tgttgagaca	ttatggcaag	atgaccactt	caattaagat	11820
ataggaaaga	gcttcatttg	tatataaatg	tatcatttta	aaaaaaaaac	tttggaatag	11880
cttaaaatgt	tatccttggc	agaatgagag	tggctcaa	atatttagtt	cagatttgtc	11940
atatataata	aaaattat	aagacaagaa	aataattaat	actattaatg	ttttctttgg	12000
cttctttcaa	aaactgaacg	tcagtctgag	ttgaagtagc	tcctttggaa	atcacagggg	12060
atagaactgg	ttcaacagt	agagggtgaag	tgtgcaaagg	gagaatctaa	ttggatattc	12120
ttcattta	tttaaggaa	caagtttgtt	gagaaattct	agaaacctcc	aggaatagtc	12180
tttttttttag	agttgctaag	ctacaaaccc	taaagaccca	gtgtgttagg	taccagcctc	12240
ccttatgtgt	agatgaacag	aatatggcca	cgagcaggta	ttctgaactg	ggaaaattat	12300
ggattctgaa	tgttgaaagc	tgatcagtgc	ataccctagt	caatgaatca	gccataaaaa	12360
ttgacattat	cacataataa	taataataat	aataataata	ataataataa	taataaacia	12420
taaacaactg	tgatgatgat	gatgatacac	agaacatttt	ataagagggg	ggtgagctta	12480
aagttagtgt	ctgaggggaa	tccatgcagc	tgttctatag	acaagtaagt	ggcacaagaa	12540
ggtaataatg	aaaactggta	cagactgact	tcaacctgga	tcagactttg	aagtgtctaa	12600
tgccaggtgg	tttttaatcc	caatatattt	aagcccagta	taatttggaa	aaaaaacgtg	12660
ttctgctgta	atacagtc	aaagtaccaa	ggaagggtaa	actctactca	aggtacatca	12720
tgaaactcta	atcagagtat	gtgtcatgtt	gtcttccaag	aaaatgggct	ctagagatat	12780



20557A US Sequence Listing as filed

gctacctgta	ctagtttaag	ggcctaacgg	tggcctgggt	ttagtcacac	agatagaata	12840
caggatcatct	gggccttggt	gtgcaaattt	gatatgacct	gacccaccaa	taatgcagat	12900
caggctatta	atcagttcca	actcttagac	ttctgaattg	aagaacaggt	ttttcatctt	12960
tcccattgga	tagaatccca	ttcacttaat	attcctgatt	tctctggata	tctgcgggca	13020
cagggatctt	tatactatgc	ctccaagaag	tgtcaaattt	aatagtattt	tgtagtctat	13080
tcattttttt	tttgttcctc	tgatactcat	tccaatttcc	ctatactctt	gcccacacctt	13140
gcatcagcat	cagtagcttg	gttggcacat	tgcccttacat	attttaaaca	ggggactttg	13200
aattcaatgt	ccattcaaat	agtaggtcta	tgattgtcta	ttcatagaca	ttacaataga	13260
tgaaagcatt	gaatgaatac	cataattcca	tgtacagtct	tctctgcctc	tattatatattg	13320
cagcaaattt	aatgacaaac	tattttaaaa	tcttgggtaca	ttggaattag	gtccccaat	13380
atccagagag	caaatacaca	tttaggttta	gcaaattctt	aatgaccgcc	ataaatattg	13440
ttctcatttc	caccacatgc	acatgaaatg	cagaatattc	ctccatactc	catagagaca	13500
ggaagtaggc	agttcttgag	tgatactctg	ggttatagt	acaggagata	agcttcctca	13560
catttggttc	ccacatcaat	gctttctatt	ttctgaatgc	taaaccagta	ggtgagtgtg	13620
aaggcattgc	tgatgtttgt	catgcaaata	tgccatggca	aattccaagc	aacttgcaaa	13680
aggtcaactg	gccataaaca	acgcctgaaa	atctaagat	tgcttttcat	gaattaatat	13740
aatcctgaca	catgcataga	gcagcatgcc	cagtcagatt	gtcttcttca	tgctggagcc	13800
ttagcacata	gttaagggta	aatagtttat	tcaagccagt	gtctagggag	atagcataag	13860
ttaggccctg	taaattcttt	ggacaagtgt	ctgttatcga	gcttactttt	caaactagtt	13920
tgcttcattt	gagtgtttta	gtagattccc	atgttaaggc	aagcagtatg	tgaactctga	13980
agggttaataa	tactttctga	ggtgctatgg	tgaagtacct	gggactggat	ttatgtcaat	14040
ataagagaca	cacatttact	cctttcctaa	tgagtcaaca	tctaacattt	ttttaaaaag	14100
taagttgatg	ctcatttccc	tgagaggtat	tattgtatgg	accctgtact	gaattgggtgc	14160
taatgagctg	gccatagctg	tatccatgtg	cgcagtagct	atatcgaaac	agatgcaaaa	14220
gacctgcact	cttcattcta	agtatatact	ttctccctct	ctcatttctt	ggctacactc	14280
actgggtcat	ttaataatca	ttgtagttat	ctgagacagg	taggttccag	aggatgaatc	14340
attttacccc	cacccctact	ctctagcaat	tcgactggag	aagtacaatc	tctaggaaac	14400
atggatgtga	cacacagttg	tacacaattc	attcattttg	ccgtagctta	tcctcagctt	14460
cttcttcaac	tctgcctaag	agaggttttc	cagtatttct	ccttcctggg	caaactattc	14520
aagaggcttc	cacctgtata	gaaagacatg	tatttcctta	ttccaggaga	tatctgggttc	14580
tcgatataaa	attacagtga	agtgcatttt	gcctcaaggc	ctctcaaaat	ccatttccccg	14640
tgtgtacttc	tggcttctgc	tgcttcatat	tcaacatacc	tgctcattct	ttgttgaata	14700

20557A US Sequence Listing as filed

ttctgtttttc	ttgtttttcct	ggcacggact	gtactattgc	aggtggtgtc	tattgaaatt	14760
tggcattttt	gttgcttaga	gccatgagag	aggatgggat	gaaataataa	agagagcaaa	14820
tgtcgttttt	tattgtctct	ctgagtggag	atgccactgc	actgtaatag	aagggaaacca	14880
tgtatatcta	tacaaacaga	tatgggtcaac	cgaggggcaca	gtatcttcaa	gggcaccaca	14940
catccacctc	cttgtgtatc	atcctggcat	ttggatagat	gctgtggcag	cttaacacct	15000
ttctacttca	catttctaat	ataaatccct	ttcttctagg	acatgttgac	cacagtaaga	15060
aaggggaatt	ggtccataaa	acttttccag	ctttcttggg	ctacatttgg	ctggaccaag	15120
gatatcgctt	tcttcagtgg	aatttaaaga	cctctcagcg	cttagctgta	caattattat	15180
tgtcttcaca	tttctcagt	atctactatg	cctgctccat	ttacataatg	ctcagattac	15240
tataactgaa	tctgtagtgt	agtgatgcc	aatgcctgag	cagtcttctt	ggctccagtt	15300
atggacagta	cactccttaa	ccaaggctct	ttctttctat	tgccatgagt	ctagtaaatt	15360
ggtctcttca	ggaatatcaa	cctgagcatc	tattttacca	gagtggtatc	aaataagatt	15420
agtttcccta	gaaacagtta	ctgagataaa	gattttaaatt	caaatagttg	atatggaaag	15480
ttactctaga	aaaatctgat	tgtgaaattc	agaaattaaa	gaaggaaact	agtgaataat	15540
gcattgttca	gtagcacaac	cctgtgagag	ttgagctcat	tcttctgccc	atcaggaaat	15600
agtatacaaa	ggtgcatatt	ttcaaagggg	agatatgctc	ttatgtgaaa	tgactaacc	15660
atgtaacatc	agttcccttt	ctttcacagc	atgctgtctt	cagtcagar	gttggagtgt	15720
agtcttggtc	agattcaggt	tatgttggca	tgtacagaac	gtatggccac	cagtaacatc	15780
tgtccaagta	agacagtga	caatgctatt	gccaaatcct	aaaagaattt	tctgatgaca	15840
tcacctttga	ataggtatta	tgcatcaca	attgggccac	cagttaacag	cccttttcct	15900
actggtagaa	cacagctgga	gtcaaaactg	agattcacaa	tgccataata	aaattgtaat	15960
cattgttttg	ctgaagccat	tccaacttta	gatttgtact	tctactattg	ctgtttttga	16020
gaagtgtctc	agtgttttac	ctgccaagt	ctaccacacc	tggctttaac	tatatatttt	16080
ttggaaagta	aacattttta	atgacttctt	ttttattttt	tttaattaat	attttttatt	16140
acatattttc	ctcaattaca	tttccaatgc	tatccccaaa	gtcctccata	ccctcccccc	16200
ccacttcctt	accactcat	tccccttttt	tttttttttt	ggccctggca	ttcccctgta	16260
ctggggcata	tacagtttgc	atgtccaatg	ggcctctctt	tccagtgatg	gccgactagg	16320
ccatcttttg	atacatatgg	agctagagtc	aagagctccg	gggtactgga	tagtt	16375

<210> 5  
 <211> 8791  
 <212> DNA  
 <213> Mus musculus

## 20557A US Sequence Listing as filed

&lt;400&gt; 5

gatcttttaa	ctcatggctg	ttggctagac	attggctatg	gaatgtaatc	acagtcttat	60
cagctctgtg	catttctgtt	agctttggaa	aaatcaaaag	ggtcaagaga	gaaagtaaac	120
catttggacc	agggaaat	tattgttaag	aaatagttat	tcactataac	ttaggagatg	180
gctcagagag	taagacgact	ctctgtacaa	ccataagaac	cggagttcag	cctcccagca	240
taaaaatctg	ggtgtagttg	taaccagtta	tcccagaatt	gtgggagggg	ctgaattaaa	300
aggcttgctg	gctcccagta	aatagtgtc	caatagtaga	ttcaatgtac	tactgtgggtc	360
tgcaggagt	ctaagatgta	tacctacaca	cacatttgag	ttttcaccac	caatatatac	420
cacaaatcaa	cacatatcat	aatggggaaa	agaaaaaata	tactgtaaaa	aatccaatct	480
aactcaatca	attatcagag	tatcagagtc	attgttgaga	attaagaaac	ctaaggctaa	540
ggacatggct	tgggaagaga	acattaaaat	gtatgcaaac	atgaagactt	gacaggggtgc	600
agatccctag	acttcatgtg	aacattttgt	agggtgtgtg	gctcagaagg	tggagaccag	660
tatcctcagg	atgagaagtt	ttattagaat	taaagatttc	caaaaaaaaa	aaaaaaaaaa	720
agaaagcaca	aataccatgt	atatgacaag	gtagtcta	ctatagctac	ctatgagaat	780
gaaataaagt	cataaaggag	atattaatgg	ccaatactc	tgacctaga	tctgatcctc	840
ttctagagac	atggatat	tcttaaaagg	caggtaagtc	actaggaggc	cattttgggtg	900
gaatttgcta	gaaaatgact	ctttggtgtt	tctaattgta	accagaaatt	gtcgtctaca	960
aaaaatat	aaataaaaat	aaaacaataa	aaatcgtgag	agaggctccta	tagatgagaa	1020
ctcatgtcag	taggctattg	ttggccattg	ggatcgtagt	ggagtttcag	aatcttccag	1080
aacaaggaga	aatagggact	gtataaaaca	atggtggcta	agtctaaaga	acccgtatgt	1140
atggcagcag	acagacacca	gataatctgt	tcataggcag	agcccatgag	ctaacaagt	1200
acatacctta	ggaaatatac	ctttctcatt	cagtgtcttg	catcatctgt	acataatata	1260
tggaaactgtg	ctaattacta	aaaggaaagt	attgaaaatc	cccagatatt	caatcaaaca	1320
aaccaaccaa	agtgaacat	ttcagttgag	aggtaatgaa	tacatatata	gaggcattgt	1380
attaaaattt	acataataat	tctttaaatt	attttattat	tattgagata	ttaactgata	1440
ttaagagtaa	ttgttgaaag	ggaatcaata	tatcatttca	catacttggt	gcttaaatct	1500
aagactattc	caaggaaaag	aatgatattt	atatcattga	cagcacggat	gaaaactgaa	1560
ctcattttta	agaaataagt	ttaatggatg	ttatattagc	tatgtcagta	attggttctt	1620
tggggagAAC	tatatTTAAA	cttacagttt	atgcaaatgt	gattagtc	ttgaaatgaa	1680
taagtcattt	cataatatag	ctatgcatat	aaaatttcct	agtcaagaag	ggcttctg	1740
gttgatatatg	tattttgaca	tgctttaatt	ggcccaatta	tcttagttgg	ataagcatgg	1800
ctcttgcaaa	gaatctccat	aattttcatg	atttctcaat	aaaaaagggg	ggggggtaga	1860

20557A US Sequence Listing as filed

tcatagtgca	tttttcatct	gagtcagggg	ttttcttttag	tcacatgtat	aaacatgctt	1920
gatgtaaggg	aattctgtgg	cataaaattg	tcatgcagcc	catgggtggt	gacaagtctt	1980
cattaggtcc	agcctgtgga	tgaaagtaat	gagttccaga	gcactttaat	ctaagtaaat	2040
gtagtcttaa	ttagaataag	tatgaatcaa	ttacctttca	aaatcaatat	aacaactcaa	2100
gaagggtttt	ttttgtttgt	ttacttttct	aatttcagaa	aaatgtaaag	gtttcaaact	2160
aatagattat	tgacttttctg	tttaaattat	tttacatcat	tcaaataaat	ttgcaaaaac	2220
caaatacttt	ttagtatatg	tgctgccgaa	gcgagcacia	aaaccaaata	cttttttctgt	2280
tatgttttaa	aaatgatatc	tatctattaa	atgcattcga	tgtattttcta	tctcagcaca	2340
ctaccctttg	cctttccaag	tctttcaaga	cctctttccc	tttaggggtcc	tcctttccac	2400
ttgatgtgca	cttgggtcca	attaaagatg	tccttatgtg	tgtgtatata	gcaatctatg	2460
tgagcatggg	cagtcttcca	agcaagttac	tacatctctg	aagaaagcca	acccaactca	2520
ccttccccta	ataaccctcc	cctgggccct	catgtgcatc	tctctgctcc	gggctagact	2580
gtggactgac	ttgatgatgt	gccgggtctca	gagctgtaga	tgtcatgagg	tcctgagtgt	2640
aacacttggt	gaagacgctg	cttgacagca	gtcctcccca	ttccctagct	cttacagtca	2700
gtgcaccacc	tcttcagtca	tccttgagtg	tgagagggag	gcagtgtgac	aaagatagcg	2760
actttggggc	ttgaaacttc	accatcatct	attccctaaa	ctttgactag	ctgtgggtct	2820
ctatattaat	gtctgtccac	tataaaagga	acttctctaa	tgaggagtga	aggctgcacc	2880
aagccaccaa	gaatctgtat	tgacatgagt	ttaatagaaa	aagagaatta	aagttaactt	2940
taattgtagc	ttaacctttt	atgtataaatt	ttaatctgaa	actgaacatc	caatttaaag	3000
tgggtccattg	gaaaagatag	ttgataaatt	atttcaataa	tatacattat	ttattaagca	3060
cgtgactatg	aagttcacaa	ccatgctgct	ctgtgataga	agctaaagac	aaaaaatatt	3120
tttatgggag	aaaatatcac	tgtttagtct	tggctaacct	ggaattccct	ataggccaat	3180
ctgtcttttg	actcatagag	cctctgctgt	ccaagtgtg	taatcaaggg	catgtgccat	3240
catacctggg	aaaaacagtc	ctgcatatag	tcttgtatat	acagtttgca	ttgaataaaa	3300
acagagtggg	caattaattg	aaagcaccac	ctttactagc	tgcagcaaca	ttttctgtca	3360
aagaaaagca	tctcaaccaa	accctgtgt	ctggagcttg	ttcggacaat	atagggagag	3420
ggaattggct	tgtgttggga	tttcttttgt	actgctgtgt	tactttgcaa	ttgtaaaaaa	3480
aaagaaatga	cataaagggtg	gtgttttata	tttgaatatt	catataggta	aatggaattt	3540
ggtttatctt	ttattttgtt	attttaagtt	gcctattagt	tttgtaaata	gatcttattg	3600
ttagagggtg	tgggtatttct	catgccatgg	catgcacatg	gaagtcagag	gacttgccaa	3660
tactctcctc	ctgccaggat	ctccttctgt	gtgattagag	atggaattca	tcttttcggt	3720
cttgggtctga	gcacctgaac	tcactaaggc	atcacctaag	cccagttata	cttagtactt	3780

20557A US Sequence Listing as filed

tggttagtt tctctgatat actttgtttt tcagcttctc catgggtgga taatagtaga	3840
actccaaaca agattgatct atatgatgta cgcagaagac catggtatga tgttttgact	3900
acctctaaag atgcgatcaa taaatggggg ttctatcatt tgtaataca ttgaggggaa	3960
acttcccctt agtgggatgg gtactctctt atatagaatg ctgtgatact ttcaaaatac	4020
aaatacaatt aatgacaaat gaaaatgatg tgtttgagaa ggaaatctct gtgaatactg	4080
ataaaatgat tttcagactc aattcaaatg gattgctgta agtcttctgt ccagttttag	4140
ctttcagtct ccttttagctg gcagggcttt tcttcaaaga gcaactactt tgcttgggga	4200
aaagccctca catagagatg gcatggagtc acagacagct tgcctctggc agtgaactaa	4260
tggaactgg ccctaagcta acagtgctgc ctagatactt ccataaagtt taggttttat	4320
tatttctccc caaagtaatt ttatttgttt gacactatta acgtaattca tcatccta	4380
tcaaaacaca agaaaatatg aacaatatat gtttgaactc tctgggagac aactatgaaa	4440
cttcatgtat ttttattatt gattggattt tgagtgtata aaagttatac ttaaattgta	4500
aatatactat ttttaatgag ttcacatata caacatggta ccttatactc tgttcttttc	4560
atattaattt ttgagtatgt agtaatgaaa aggaatactt aaaatccctt taataaaggc	4620
tatctgttca cttatttaag aaagtcctta ttgtgtttgt gcattgcttc caacttctgg	4680
tattttcaca caaattctgt gcagcatagt ggtggttgaa agaacattta gttatggctt	4740
tcaagtgtcc tgttgagtat tcaataggta ttgcatgaa cacaacctta agtaatagtt	4800
accaatgtat tagtgacttt taagtgtcct tctgaatagc caatagcaat atacatgaac	4860
aaaaccttga atactattaa taatatttct ctagtctatt atttaatgaa agcaaatact	4920
atgttataac atagtgttac ttaggaaacg gtcattttat gggaaactgta ggagcgaggt	4980
gtcactcatc tgaagcagac actttgctaa tcttttcatc tgccactgag cagcacacca	5040
ggacaatgtg ttaagatgct agacatgagc tgggttgtct tgcattgggca aacagtggag	5100
ctttgcctat tggctggaat acagagcatg gagggttg caggcaaggc gctggagtgc	5160
tcattctaca aataatccca agtagtagca gctgtgctcc gaaatgctga gaatgaattg	5220
gcttgctttc tgtctgttgc tgggtcactt gagtcagatg cagcccttcc cactgtggaa	5280
ggcagatgct taatcccttc aatttgtttt gttcccctcc agtctctggc taagcaatat	5340
gtgtcttctc tttgttcctt ttctttcttt ttcttttctt tttaaattact ttgctgctat	5400
caaatttagc tctctacaag cacttaactt cctgcctaaa tctcccgaag tgtgtatttc	5460
aaatacagag aatcagagat gtggttagag tttggaattt acatttaa	5520
gtgattcttg gatgccataa atcttttaga gtttctgctt catatttctg gtaatagtaa	5580
tatccattac ctggtttcag tttttaactt acctgttata tttcctttta atttgcttta	5640

## 20557A US Sequence Listing as filed

tcttaaggct	ttttgactac	ttatctctct	gtgtttat	attttttgta	tttaaaaatg	5700
tcataatttg	ttgttcacta	caactgaaat	gtcagcaatc	agaatttagg	ggccgggcat	5760
tgtggcatac	gtctttaatc	ccagcacttg	ggaggcagag	gcaggcgaat	ttctgagttc	5820
aaggccagcc	tggtctacag	agtgagttcc	aggacagcca	gggttatata	gagaaaccct	5880
gtctcgaaaa	aacataaata	aataaataaa	taaataatcg	gaatttagga	ttgttccttc	5940
ttcagaagta	aataatcggt	tggaaagtaa	ttttagtcac	tgcttacatt	aaatttcac	6000
tttatttttt	tcataaatcc	ctagaaacta	tgcatcctaa	agccataatg	tattaatatc	6060
tctaattggga	tcttaaatac	tcttttcaaa	aaaacatttc	agagtatggt	taaaagagca	6120
ttgtttacta	tggtgtaata	gaatgggact	ttgttttaat	catatcatat	ttcagaaatg	6180
tataaatatg	aacacagcaa	atgtcaatgt	tatacataga	ggaaaaggca	atgttttgct	6240
ggttctgttt	caggtacatc	cagggagctg	catcccccaa	ggacatgctc	attctgggtga	6300
acgtgtgagt	agtgcagtag	acatttgtag	gtaataatag	gttggtggga	attagaagtg	6360
tatgaaagtt	gggataacaa	agaatcaata	taatggttgt	atatctagaa	aaacaagcca	6420
aacttcgata	ttaacaattg	attgttgact	tggctcaatc	agtaaagtgc	ttgttgacac	6480
agaggaaggt	ctgagtgcac	agctctggct	tttacacgaa	aacaattata	taataagggga	6540
gcagtgggtg	tgcctgtaat	gccaatgtg	aatagtagga	gagaagaagt	gccccagggc	6600
tcactgatta	gacagtctaa	gggatcagtc	tggttctggga	ttactgtgag	accccagtat	6660
taaagaatat	ggtagagagc	cacagaagat	acctgggcatt	gacccctgac	atccacacac	6720
atacactcac	ccaccattc	cacacccac	atttatgcaa	atgggcacac	gaagacaata	6780
acaaaaccag	aaagatcatt	ctattgaaaa	tgtaaataat	gtatctgtat	caaactggga	6840
aattatacta	ttctaaaagc	taatgagatc	acttttggtc	tttatgatcg	tgtttgataa	6900
atgacaggtg	aatgacacac	ggaccattt	gtctgtttgt	aggagtggaa	gtgtgagcgg	6960
attgactctg	aaactcatcc	gaacatctgt	ctccgagatg	ttagaaaccc	tctctgatga	7020
tgatttcgtg	aatgtagctt	cagtgagtat	ggatggctgc	tccttctgga	atcccgcctg	7080
cctgtctccc	tacatcatta	catactgggt	tgtgttttcc	ttcgatgggc	tgaggcattg	7140
tcagagtgtc	ataagctgtc	ttactgatct	agcctgtatt	gtcctttctg	agatgcttag	7200
cattaccacc	actgaagtaa	tgaatactga	atgaaaagca	ttccgtccct	tccctcaaag	7260
gagcccacat	gggtactgtg	agcccttcca	cacacaggca	cctttgggac	atcttatgaa	7320
gtagcatgat	tgaactgtta	attgcttgta	gctgggtata	ctcatttggtg	ggctggacag	7380
ctgaccttat	tgcactgagt	ttttcctaac	agaagaaagt	aaaggggaaa	gtgaataagc	7440
tgggaattat	cttagacctt	ttcctagcta	ggaagtactg	gccttgccgc	aaatgggcca	7500
agatgtgcc	tgtctcatct	tgatctatgt	aatttaggga	cccaatttca	tggccatttt	7560

# 20557A US Sequence Listing as filed

ctagtgcagg aaatttcata tgtgaagtgg ttcatttatg gagatgtggc tgaaggagca	7620
gtagattttg gtggtgttga tttttattga acaaaggaga atagatctgc ttctaaaaat	7680
cactgggtag ggtgaagtta aagtctacaa ctgattgtct cactttcctg gaattggggg	7740
aaacagaaat ctccataatc ctaattcttc taatgatgat ggaatggtga tgctaagatg	7800
gagaggattt atctctaaaa tgaaatcact aagatagtc tgaatgctgg tatggataaa	7860
gagtatagaa ccctactatg ataatgtaag acttcctgga tagtgtgtca cgatgtataa	7920
ttctcaagga gaataatttt aaaatattct atagttcaaa taaattcaga tggaaccttg	7980
tcaaactctt gttgagacat tatggcaaga tgaccacttc aattaagata taggaaagag	8040
cttcatttgt atataaatgt atcattttta aaaaaaaact ttggaatagc ttaaaatggt	8100
atccttggca gaatgagagt ggctcaaata tatttagttc agatttgtca tatataataa	8160
aaattattta agacaagaaa ataattaata ctattaatgt tttctttggc ttctttcaaa	8220
aactgaacgt cagtctgagt tgaagtagct cctttggaaa tcacagggaa tagaactggt	8280
tcaacagtga gaggtgaagt gtgcaaaggg agaatctaata tggatattct tcatttaatt	8340
taaggaaacc aagtttgttg agaaattcta gaaacctcca ggaatagtct tttttttaga	8400
gttgctaagc tacaaaccct aaagaccagc tgtgttaggt accagcctcc cttatgtgta	8460
gatgaacaga atatggccac gagcaggat tctgaactgg gaaaattatg gattctgaat	8520
gttgaaagct gatcagtga taccctagtc aatgaatcag ccataaaaaat tgacattatc	8580
acataataat aataataata ataataataa taataataat aataaacaat aaacaactgt	8640
gatgatgatg atgatacaca gaacatttta taagaggggtg gtgagcttaa agttagtgtc	8700
tgaggggaat ccatgcagct gttctataga caagtaagtg gcacaaagag gtaataatga	8760
aaactggtac agactgactt caacctggat c	8791

<210> 6  
 <211> 72  
 <212> DNA  
 <213> Mus musculus

<400> 6	
gcttctccat gggtggataa tagtagaact ccaaacaaga ttgatctata tgatgtacgc	60
agaagaccat gg	72

<210> 7  
 <211> 46  
 <212> DNA  
 <213> Artificial

<220>  
 <223> Synthetic oligonucleotide

20557A US Sequence Listing as filed

<400> 7  
caaaacatca taccatggtg ctctgcgtac atcatataga tcaatc 46

<210> 8  
<211> 221  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic oligonucleotide

<400> 8  
ggtggtgttt tatatttgaa tattcatata ggtaaattgga atttggttta tcttttattt 60  
tgttatttta agttgcctat tagttttgta aatagatcct attgtagag gtggtggtat 120  
ttctcatgcc atggcatgca catggaagtc agaggacttg ccaatactct cctcctgcc 180  
ggatctcctt ctgtgtgatt agagatggaa ttcattcttt c 221

<210> 9  
<211> 180  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic oligonucleotide

<400> 9  
ggtcttggtc tgagcacctg aactcactaa ggcattcacct aagcccagtt atacttagta 60  
ctttggctta gtttctctga tatactttgt ttttcagctt ctccatgggt ggataatagt 120  
agaactccaa acaagattga tctatatgat gtacgcagag caccatggta tgatgttttg 180

<210> 10  
<211> 2101  
<212> DNA  
<213> *Saccharomyces cerevisiae*

<400> 10  
ggccatagcg gccggatcct cgaggcgcgc catttaaattc gttggcagaa catatccatc 60  
gcgtccgcca tctccagcag ccgcacgcgg cgcattcccc cccccctttc aattcaattc 120  
atcatttttt ttttattctt ttttttgatt tcggtttctt tgaaattttt ttgattcggg 180  
aatctccgaa cagaaggaag aacgaaggaa ggagcacaga cttagattgg tatatatacg 240  
catatgtagt gttgaagaaa catgaaattg ccaggtattc ttaaccaaac tgcacagaac 300  
aaaaacctgc aggaaacgaa gataaatcat gtcgaaagct acatataagg aacgtgctgc 360  
tactcatcct agtcctgttg ctgccaagct atttaatatc atgcacgaaa agcaaacaaa 420  
cttgtgtgct tcattggatg ttcgtaccac caaggaatta ctggagttag ttgaagcatt 480  
agggtccaaa atttgtttac taaaaacaca tgtggatatc ttgactgatt tttccatgga 540  
gggcacagtt aagccgctaa aggcattatc cgccaagtac aattttttac tcttcgaaga 600



# 20557A US Sequence Listing as filed

cagaaaat	gctgacattg	gtaatacagt	caaattgcag	tactctgcgg	gtgtatacag	660
aatagcagaa	tgggcagaca	ttacgaatgc	acacggtgtg	gtgggcccag	gtattgttag	720
cggtttgaag	caggcggcag	aagaagtaac	aaaggaacct	agaggccttt	tgatgttagc	780
agaattgtca	tgcaagggct	ccctatctac	tggagaatat	actaagggta	ctgttgacat	840
tgcaagagc	gacaaagatt	ttgttatcgg	ctttattgct	caaagagaca	tgggtggaag	900
agatgaaggt	tacgattggg	tgattatgac	acccggtgtg	ggtttagatg	acaagggaga	960
cgcattgggt	caacagtata	gaaccgtgga	tgatgtgggtc	tctacaggat	ctgacattat	1020
tattgttggg	agaggactat	ttgcaaaggg	aagggatgct	aaggtagagg	gtgaacgtta	1080
cagaaaagca	ggctgggaag	catatttgag	aagatgcggc	cagcaaaaact	aaaaaactgt	1140
attataagta	aatgcatgta	tactaaactc	acaaattaga	gcttcaat	aaattatatca	1200
gttattactc	gggcgtaatg	atactaaatc	ggaaccctaa	aggagagcccc	cgatttagag	1260
cttgacgggg	aaagccgggc	tgcaagtgaga	cgttgatcgg	cacgtaagag	gttccaactt	1320
tcaccataat	gaaataagat	cactaccggg	cgtatttttt	gagttatcga	gattttcagg	1380
agctaaggaa	gctaaaatgg	agaaaaaat	cactggatat	accaccgttg	atatatccca	1440
atggcatcgt	aaagaacatt	ttgaggcatt	tcagtcagtt	gctcaatgta	cctataacca	1500
gaccgttcag	ctggatatta	cggccttttt	aaagaccgta	aagaaaaata	agcacaagtt	1560
ttatccggcc	ttattcaca	ttcttgccc	cctgatgaat	gctcatccgg	aattccgtat	1620
ggcaatgaaa	gacggtgagc	tggtgatatg	ggatagtgtt	cacccttggt	acaccgtttt	1680
ccatgagcaa	actgaaacgt	tttcatcgct	ctggagtga	taccacgacg	atttccggca	1740
gtttctacac	atatattcgc	aagatgtggc	gtgttacggg	gaaaacctgg	cctattttccc	1800
taaaggggtt	attgagaata	tgtttttcgt	ctcagccaat	ccctgggtga	gtttcaccag	1860
ttttgattta	aacgtggcca	atatggacaa	cttcttcgcc	cccgttttca	ccatgggcaa	1920
atattatacg	caaggcgaca	aggtgctgat	gccgctggcg	attcagggttc	atcatgccgt	1980
ctgtgatggc	ttccatgtcg	gcagaatgct	taatgaatta	caacagtact	gcgatgagtg	2040
gcagggcggg	gcgtaatttt	tttaaggcag	ttattttaa	ggcgcgccgg	ccagcgagggc	2100
c						2101

<210> 11

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Synthetic oligonucleotide

<400> 11

20557A US Sequence Listing as filed

gcagcgcac gccttctatc	20
<210> 12	
<211> 22	
<212> DNA	
<213> Artificial	
<220>	
<223> Synthetic oligonucleotide	
<400> 12	
ctctttgaag aaaagccctg cc	22
<210> 13	
<211> 24	
<212> DNA	
<213> Artificial	
<220>	
<223> Synthetic oligonucleotide	
<400> 13	
ctaatgccag gtggttttta atcc	24
<210> 14	
<211> 21	
<212> DNA	
<213> Artificial	
<220>	
<223> Synthetic oligonucleotide	
<400> 14	
ctgatctgca ttattggtgg g	21
<210> 15	
<211> 22	
<212> DNA	
<213> Artificial	
<220>	
<223> Synthetic oligonucleotide	
<400> 15	
cattttgtag gtgtgttgac tc	22
<210> 16	
<211> 25	
<212> DNA	
<213> Artificial	
<220>	
<223> Synthetic oligonucleotide	
<400> 16	
ctcaacaatg actcataatt gattg	25

20557A US Sequence Listing as filed

<210> 17  
 <211> 24  
 <212> PRT  
 <213> Mus musculus

<400> 17

Ala Ser Pro Trp Val Asp Asn Ser Arg Thr Pro Asn Lys Ile Asp Leu  
 1 5 10 15

Tyr Asp Val Arg Arg Ala Pro Trp  
 20

<210> 18  
 <211> 41  
 <212> PRT  
 <213> Mus musculus

<400> 18

Ala Ser Pro Trp Val Asp Asn Ser Arg Thr Pro Asn Lys Ile Asp Leu  
 1 5 10 15

Tyr Asp Val Arg Arg Ala Pro Trp Tyr Ile Gln Gly Ala Ala Ser Pro  
 20 25 30

Lys Asp Met Leu Ile Leu Val Asn Val  
 35 40

<210> 19  
 <211> 74  
 <212> PRT  
 <213> Mus musculus

<400> 19

Ala Ser Pro Trp Val Asp Asn Ser Arg Thr Pro Asn Lys Ile Asp Leu  
 1 5 10 15

Tyr Asp Val Arg Arg Ala Pro Trp Tyr Ile Gln Gly Ala Ala Ser Pro  
 20 25 30

Lys Asp Met Leu Ile Leu Val Asn Val Ser Gly Ser Val Ser Gly Leu  
 35 40 45

Thr Leu Lys Leu Ile Arg Thr Ser Val Ser Glu Met Leu Glu Thr Leu  
 50 55 60

Ser Asp Asp Asp Phe Val Asn Val Ala Ser  
 65 70

<210> 20  
 <211> 72

## 20557A US Sequence Listing as filed

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 20

gcttctccat ggggtggataa tagtagaact ccaaacaaga ttgatctata tgatgtacgc 60  
 agagcaccat gg 72

&lt;210&gt; 21

&lt;211&gt; 2492

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 21

gcttctccat ggggtggataa tagtagaact ccaaacaaga ttgatctata tgatgtacgc 60  
 agagcaccat ggtatgatgt tttgactacc tctaaagatg cgatcaataa atgggggttc 120  
 tatcatttgt taatacattg aggggaaact tcccccttagt gggatgggta ctctcttata 180  
 tagaatgctg tgatactttc aaaatacaaa tacaattaat gacaaatgaa aatgatgtgt 240  
 ttgagaagga aatctctgtg aatactgata aaatgatttt cagactcaat tcaaattggat 300  
 tgctgtaagt cttctgtcca gtttttagctt tcagtctcct ttagctggca gggcttttct 360  
 tcaaagagca actactttgc ttggggaaaa gccctcacat agagatggca tggagtcaca 420  
 gacagcttgc ctctggcagt gaactaatgg gaactggccc taagctaaca gtgctgccta 480  
 gatacttcca taaagtttag gttttattat ttctcccaa agtaatttta tttgtttgac 540  
 actattaacg taattcatca tcctaattca aaacacaaga aaatatgaac aatatatgtt 600  
 tgaactctct gggagacaac tatgaaactt catgtatttt tattattgat tggattttga 660  
 gtgtataaaa gttatactta aattgtaaat atactatttt taatgagttc acatatacaa 720  
 catggtacct tatactctgt tcttttcata ttaatttttg agtatgtagt aatgaaaagg 780  
 aatacttaaa atccctttaa taaaggctat ctgttcactt atttaagaaa gtccttattg 840  
 tgtttgtgca ttgcttccaa cttctggtat tttcacacaa attctgtgca gcatagtgg 900  
 ggttgaaaga acatttagtt atggctttca agtgcctgtg tgagtattca ataggtattt 960  
 gcatgaacac aaccttaagt aatagttacc aatgtattag tgacttttaa gtgtccttct 1020  
 gaatagccaa tagcaatata catgaacaaa accttgaata ctattaataa tatttctcta 1080  
 gtctattatt taatgaaagc aaatactatg ttataacata gttgtactta ggaaacggtc 1140  
 attttatggg aactgtagga gcgagggtgc actcatctga agcagacact ttgctaattc 1200  
 tttcatctgc cactgagcag cacaccagga caatgtgtta agatgctaga catgagctgg 1260  
 gttgtcttgc atgggcaaac agtggagctt tgcctattgg tctgaataca gagcatggag 1320  
 tgggttgtag gcaaggcgct ggagtgtca ttctacaaat aatcccaagt agtagcagct 1380  
 gtgctccgaa atgctgagaa tgaattggct tgctttctgt ctgttgctgg gtcacttgag 1440

20557A US Sequence Listing as filed

tcagatgcag	cccttcccac	tgtggaaggc	agatgcttaa	tcccttcaat	ttgttttggt	1500
cccctccagt	ctctggctaa	gcaatatgtg	tcttctcttt	gttccttttc	tttctttttc	1560
tttcttttta	aattactttg	ctgctatcaa	atttagctct	ctacaagcac	ttaacttcct	1620
gcctaaatct	cccgaagtgt	gtatttcaaa	tacagagaat	cagagatgtg	gtagagagtt	1680
ggaatttaca	tttaaaactgt	ttctctgggtg	attcttggat	gccataaatc	ttttagagtt	1740
tctgcttcat	atttctggta	atagtaatat	ccattacctg	gtttcagttt	ttaacttacc	1800
tgttatattt	ccttttaatt	tgctttatct	taaggctttt	tgactactta	tctctctgtg	1860
tttatttatt	ttttgtattt	aaaaatgtca	taatttggtg	ttcactacaa	ctgaaatgtc	1920
agcaatcaga	atttaggggc	cgggcattgt	ggcatcacgtc	tttaatccca	gcacttggga	1980
ggcagaggca	ggcgaatttc	tgagttcaag	gccagcctgg	tctacagagt	gagttccagg	2040
acagccaggg	ttatacacag	aaaccctgtc	tcgaaaaaac	ataaataaat	aaataaataa	2100
ataatcgga	tttaggattg	ttccttcttc	agaagtaa	aatcgtttgg	aaagtaattt	2160
tagtactgc	ttacattaaa	tttcatcttt	atttttttca	taaatcccta	gaaactatgc	2220
attcaaaagc	cataatgtat	taatattctt	aatgggatct	taaatactct	tttcaaaaaa	2280
acatttcaga	gtatgtttaa	aagagcattg	tttactatgg	tgtaatagaa	tgggactttg	2340
ttttaatcat	atcatatttc	agaaatgtat	aaatatgaac	acagcaaatg	tcaatgttat	2400
acatagagga	aaaggcaatg	ttttgctggt	tctgtttcag	gtacatccag	ggagctgcat	2460
cccccaagga	catgctcatt	ctggtgaacg	tg			2492

<210> 22  
 <211> 123  
 <212> DNA  
 <213> Mus musculus

<400> 22	
gcttctccat	gggtggataa tagtagaact ccaaacaaga ttgatctata tgatgtacgc 60
agagcaccat	ggtacatcca gggagctgca tcccccaagg acatgctcat tctggtgaac 120
gtg	123

<210> 23  
 <211> 3529  
 <212> DNA  
 <213> Mus musculus

<400> 23	
gcttctccat	gggtggataa tagtagaact ccaaacaaga ttgatctata tgatgtacgc 60
agagcaccat	ggtatgatgt ttgactacc tctaaagatg cgatcaataa atggggggttc 120
tatcatttgt	taatacattg aggggaaact tccccttagt gggatgggta ctctcttata 180
tagaatgctg	tgatactttc aaaatacaaa tacaattaat gacaaatgaa aatgatgtgt 240

20557A US Sequence Listing as filed

ttgagaagga aatctctgtg aatactgata aaatgatttt cagactcaat tcaaattggat	300
tgctgtaagt cttctgtcca gtttttagctt tcagtctcct ttagctggca gggcttttct	360
tcaaagagca actactttgc ttggggaaaa gccctcacat agagatggca tggagtcaca	420
gacagcttgc ctctggcagt gaactaatgg gaactggccc taagctaaca gtgctgccta	480
gatacttcca taaagtttag gttttattat ttctcccaa agtaatttta tttgtttgac	540
actattaacg taattcatca tcctaattca aaacacaaga aaatatgaac aatatatgtt	600
tgaactctct gggagacaac tatgaaactt catgtatttt tattattgat tggattttga	660
gtgtataaaa gttatactta aattgtaaat atactatttt taatgagttc acatatacaa	720
catggtacct tatactctgt tcttttcata ttaatttttg agtatgtagt aatgaaaagg	780
aatacttaaa atccctttta taaaggctat ctgttcactt atttaagaaa gtccttattg	840
tgtttgtgca ttgcttccaa cttctggtat ttccacacaa attctgtgca gcatagtgg	900
ggttgaaaga acatttagtt atggctttca agtgcctgtg tgagtattca atagggtattt	960
gcatgaacac aaccttaagt aatagttacc aatgtattag tgacttttaa gtgtccttct	1020
gaatagccaa tagcaatata catgaacaaa acctgaata ctattaataa ttttctcta	1080
gtctattatt taatgaaagc aaatactatg ttataacata gttgtactta ggaaacggtc	1140
attttatggg aactgtagga gcgagggtgc actcatctga agcagacact ttgctaattc	1200
tttcatctgc cactgagcag cacaccagga caatgtgtta agatgctaga catgagctgg	1260
gttgtcttgc atgggcaaac agtggagctt tgcctattgg tctgaataca gagcatggag	1320
tggttgagca gcaaggcgct ggagtgtc tttacaaat aatcccaagt agtagcagct	1380
gtgctccgaa atgctgagaa tgaattggct tgctttctgt ctgttgctgg gtcacttgag	1440
tcagatgcag cccttcccac tgtggaaggc agatgcttaa tcccttcaat ttgttttgtt	1500
cccctccagt ctctggctaa gcaatatgtg tcttctcttt gtcccttttc tttcttttc	1560
tttctttta aattactttg ctgctatcaa atttagctct ctacaagcac ttaacttct	1620
gcctaaatct cccgaagtgt gtatttcaaa tacagagaat cagagatgtg gttagagttt	1680
ggaatttaca tttaaactgt ttctctgggtg attcttggat gccataaatc ttttagagtt	1740
tctgcttcat atttctggta atagtaatat ccattacctg gtttcagttt ttaacttacc	1800
tgttatattt ccttttaatt tgctttatct taaggctttt tgactactta tctctctgtg	1860
tttatttatt ttttgtattt aaaaatgtca taatttggtt ttcactacaa ctgaaatgtc	1920
agcaatcaga atttaggggc cgggcattgt ggcatacgtc tttaatccca gcacttggga	1980
ggcagaggca ggcgaatttc tgagttcaag gccagcctgg tctacagagt gagttccagg	2040
acagccaggg ttatacagag aaaccctgtc tcgaaaaaac ataaataaat aaataaataa	2100

20557A US Sequence Listing as filed

ataatcggaa	tttaggattg	ttccttcttc	agaagtaaat	aatcgtttgg	aaagtaattt	2160
tagtcactgc	ttacattaaa	tttcatcttt	atTTTTTTca	taaatcccta	gaaactatgc	2220
attcaaaagc	cataatgtat	taatatctct	aatgggatct	taaatactct	tttcaaaaaa	2280
acatttcaga	gtatgtttaa	aagagcattg	tttactatgg	tgtaatagaa	tgggactttg	2340
ttttaatcat	atcatatttc	agaaatgtat	aaatatgaac	acagcaaata	tcaatgttat	2400
acatagagga	aaaggcaatg	ttttgctggg	tctgtttcag	gtacatccag	ggagctgcat	2460
cccccaagga	catgctcatt	ctgggtgaacg	tgtgagtagt	gcatgagaca	tttgtaggta	2520
ataatagggt	gttggggaatt	agaagtgtat	gaaagttggg	ataacaaaga	atcaatataa	2580
tggttagggt	gttggggaatt	agaagtgtat	gaaagttggg	ataacaaaga	atcaatataa	2640
tggttgata	tctagaaaaa	caagccaaac	ttcgatatta	acaattgatt	gttgacttgg	2700
ctcatgtata	tctagaaaaa	caagccaaac	ttcgatatta	acaattgatt	gttgacttgg	2760
ctcaatcagt	aaagtgcctg	ttgcacaaga	ggaaggtctg	agtgcatagc	tctggctttt	2820
acacatcagt	aaagtgcctg	ttgcacaaga	ggaaggtctg	agtgcatagc	tctggctttt	2880
acacgaaaac	aattatataa	taagggagca	gtggttgtgc	ctgtaatgcc	aattgtgaat	2940
agtagaaaac	aattatataa	taagggagca	gtggttgtgc	ctgtaatgcc	aattgtgaat	3000
agtaggagag	aagaagtgcc	ccagggctca	ctgattagac	agtctaaggg	atcagtctgt	3060
tctgggagag	aagaagtgcc	ccagggctca	ctgattagac	agtctaaggg	atcagtctgt	3120
tctgggatta	ctgtgagacc	ccagtattaa	agaatatggg	agagagccac	agaagatacc	3180
tggcattgac	ccctgacatc	cacacacata	caactaccca	cccattccac	acccacattt	3240
tatgcaaata	ggcacacgaa	gacaataaca	aaaccagaaa	gatcattcta	ttgaaaatgt	3300
aaataatgta	tctgtatcaa	actgggaaat	tatactattc	taaaagctaa	tgagatcact	3360
tttgttcttt	atgatcgtgt	ttgataaatg	acagggtgaat	gacacacgga	cccatttgtc	3420
tgtttgtagg	agtgggaagt	tgagcggatt	gactctgaaa	ctcatccgaa	catctgtctc	3480
cgagatgtta	gaaaccctct	ctgatgatga	tttcgtgaat	gtagcttca		3529

<210> 24

<211> 222

<212> DNA

<213> Mus musculus

<400> 24

gcttctccat	gggtggataa	tagtagaact	ccaaacaaga	ttgatctata	tgatgtacgc	60
agagcaccat	ggtacatcca	gggagctgca	tcccccaagg	acatgctcat	tctgggtgaac	120
gtgagtggaa	gtgtgagcgg	attgactctg	aaactcatcc	gaacatctgt	ctccgagatg	180
ttagaaaccc	tctctgatga	tgatttcgtg	aatgtagctt	ca		222

20557A US Sequence Listing as filed

<210> 25  
 <211> 1103  
 <212> PRT  
 <213> Mus musculus

<400> 25

Met Ala Ala Gly Cys Leu Leu Ala Leu Thr Leu Thr Leu Phe Gln Ser  
 1 5 10 15

Gly Leu Ile Gly Pro Ser Ser Glu Glu Pro Phe Pro Ser Pro Val Thr  
 20 25 30

Ile Lys Ser Trp Val Asp Lys Met Gln Glu Asp Leu Val Thr Leu Ala  
 35 40 45

Lys Thr Ala Ser Gly Val Thr Gln Leu Ala Asp Ile Tyr Glu Lys Tyr  
 50 55 60

Gln Asp Leu Tyr Thr Val Glu Pro Asn Asn Ala Arg Gln Leu Val Glu  
 65 70 75 80

Ile Ala Ala Arg Asp Ile Glu Lys Leu Leu Ser Asn Arg Ser Lys Ala  
 85 90 95

Leu Val Arg Leu Ala Met Glu Ala Glu Lys Val Gln Ala Ala His Gln  
 100 105 110

Trp Arg Glu Asp Phe Ala Ser Asn Glu Val Val Tyr Tyr Asn Ala Lys  
 115 120 125

Asp Asp Leu Asp Pro Glu Arg Asn Glu Ser Glu Pro Gly Ser Gln Arg  
 130 135 140

Ile Lys Pro Val Phe Ile Glu Asp Ala Asn Phe Gly Arg Gln Ile Ser  
 145 150 155 160

Tyr Gln His Ala Ala Val His Ile Pro Thr Asp Ile Tyr Glu Gly Ser  
 165 170 175

Thr Ile Val Leu Asn Glu Leu Asn Trp Thr Ser Ala Leu Asp Glu Val  
 180 185 190

Phe Lys Arg Asn Arg Asp Glu Asp Pro Thr Leu Leu Trp Gln Val Phe  
 195 200 205

Gly Ser Ala Thr Gly Leu Ala Arg Tyr Tyr Pro Ala Ser Pro Trp Val  
 210 215 220



20557A US Sequence Listing as filed

Asp Asn Ser Arg Thr Pro Asn Lys Ile Asp Leu Tyr Asp Val Arg Arg  
 225 230 235 240  
 Arg Pro Trp Tyr Ile Gln Gly Ala Ala Ser Pro Lys Asp Met Leu Ile  
 245 250 255  
 Leu Val Asp Val Ser Gly Ser Val Ser Gly Leu Thr Leu Lys Leu Ile  
 260 265 270  
 Arg Thr Ser Val Ser Glu Met Leu Glu Thr Leu Ser Asp Asp Asp Phe  
 275 280 285  
 Val Asn Val Ala Ser Phe Asn Ser Asn Ala Gln Asp Val Ser Cys Phe  
 290 295 300  
 Gln His Leu Val Gln Ala Asn Val Arg Asn Lys Lys Val Leu Lys Asp  
 305 310 315 320  
 Ala Val Asn Asn Ile Thr Ala Lys Gly Ile Thr Asp Tyr Lys Lys Gly  
 325 330 335  
 Phe Ser Phe Ala Phe Glu Gln Leu Leu Asn Tyr Asn Val Ser Arg Ala  
 340 345 350  
 Asn Cys Asn Lys Ile Ile Met Leu Phe Thr Asp Gly Gly Glu Glu Arg  
 355 360 365  
 Ala Gln Glu Ile Phe Ala Lys Tyr Asn Lys Asp Lys Lys Val Arg Val  
 370 375 380  
 Phe Thr Phe Ser Val Gly Gln His Asn Tyr Asp Arg Gly Pro Ile Gln  
 385 390 395 400  
 Trp Met Ala Cys Glu Asn Lys Gly Tyr Tyr Tyr Glu Ile Pro Ser Ile  
 405 410 415  
 Gly Ala Ile Arg Ile Asn Thr Gln Glu Tyr Leu Asp Val Leu Gly Arg  
 420 425 430  
 Pro Met Val Leu Ala Gly Asp Lys Ala Lys Gln Val Gln Trp Thr Asn  
 435 440 445  
 Val Tyr Leu Asp Ala Leu Glu Leu Gly Leu Val Ile Thr Gly Thr Leu  
 450 455 460  
 Pro Val Phe Asn Val Thr Gly Gln Ser Glu Asn Lys Thr Asn Leu Lys  
 465 470 475 480  
 Page 25

20557A US Sequence Listing as filed

Asn Gln Leu Ile Leu Gly Val Met Gly Val Asp Val Ser Leu Glu Asp  
485 490 495

Ile Lys Arg Leu Thr Pro Arg Phe Thr Leu Cys Pro Asn Gly Tyr Tyr  
500 505 510

Phe Ala Ile Asp Pro Asn Gly Tyr Val Leu Leu His Pro Asn Leu Gln  
515 520 525

Pro Lys Pro Ile Gly Val Gly Ile Pro Thr Ile Asn Leu Arg Lys Arg  
530 535 540

Arg Pro Asn Val Gln Asn Pro Lys Ser Gln Glu Pro Val Thr Leu Asp  
545 550 555 560

Phe Leu Asp Ala Glu Leu Glu Asn Glu Ile Lys Val Glu Ile Arg Asn  
565 570 575

Lys Met Ile Asp Gly Glu Ser Gly Glu Lys Thr Phe Arg Thr Leu Val  
580 585 590

Lys Ser Gln Asp Glu Arg Tyr Ile Asp Lys Gly Asn Arg Thr Tyr Thr  
595 600 605

Trp Thr Pro Val Asn Gly Thr Asp Tyr Ser Leu Ala Leu Val Leu Pro  
610 615 620

Thr Tyr Ser Phe Tyr Tyr Ile Lys Ala Lys Leu Glu Glu Thr Ile Thr  
625 630 635 640

Gln Ala Arg Tyr Ser Glu Thr Leu Lys Pro Asp Asn Phe Glu Glu Ser  
645 650 655

Gly Tyr Thr Phe Ile Ala Pro Arg Glu Tyr Cys Asn Asp Leu Lys Pro  
660 665 670

Ser Asp Asn Asn Thr Glu Phe Leu Leu Asn Phe Asn Glu Phe Ile Asp  
675 680 685

Arg Lys Thr Pro Asn Asn Pro Ser Cys Asn Thr Asp Leu Ile Asn Arg  
690 695 700

Ile Leu Leu Asp Ala Gly Phe Thr Asn Glu Leu Val Gln Asn Tyr Trp  
705 710 715 720

Ser Lys Gln Lys Asn Ile Lys Gly Val Lys Ala Arg Phe Val Val Thr  
Page 26

## 20557A US Sequence Listing as filed

725

730

735

Asp Gly Gly Ile Thr Arg Val Tyr Pro Lys Glu Ala Gly Glu Asn Trp  
                     740                    745                    750

Gln Glu Asn Pro Glu Thr Tyr Glu Asp Ser Phe Tyr Lys Arg Ser Leu  
                     755                    760                    765

Asp Asn Asp Asn Tyr Val Phe Thr Ala Pro Tyr Phe Asn Lys Ser Gly  
                     770                    775                    780

Pro Gly Ala Tyr Glu Ser Gly Ile Met Val Ser Lys Ala Val Glu Leu  
                     785                    790                    795                    800

Tyr Ile Gln Gly Lys Leu Leu Lys Pro Ala Val Val Gly Ile Lys Ile  
                     805                    810                    815

Asp Val Asn Ser Trp Ile Glu Asn Phe Thr Lys Thr Ser Ile Arg Asp  
                     820                    825                    830

Pro Cys Ala Gly Pro Val Cys Asp Cys Lys Arg Asn Ser Asp Val Met  
                     835                    840                    845

Asp Cys Val Ile Leu Asp Asp Gly Gly Phe Leu Leu Met Ala Asn His  
                     850                    855                    860

Asp Asp Tyr Thr Asn Gln Ile Gly Arg Phe Phe Gly Glu Ile Asp Pro  
                     865                    870                    875                    880

Ser Met Met Arg His Leu Val Asn Ile Ser Leu Tyr Ala Phe Asn Lys  
                     885                    890                    895

Ser Tyr Asp Tyr Gln Ser Val Cys Asp Pro Gly Ala Ala Pro Lys Gln  
                     900                    905                    910

Gly Ala Gly His Arg Ser Ala Tyr Val Pro Ser Ile Ala Asp Ile Leu  
                     915                    920                    925

Gln Ile Gly Trp Trp Ala Thr Ala Ala Ala Trp Ser Ile Leu Gln Gln  
                     930                    935                    940

Leu Leu Leu Ser Leu Thr Phe Pro Arg Leu Leu Glu Ala Val Glu Met  
                     945                    950                    955                    960

Glu Glu Asp Asp Phe Thr Ala Ser Leu Ser Lys Gln Ser Cys Ile Thr  
                     965                    970                    975

20557A US Sequence Listing as filed

Glu Gln Thr Gln Tyr Phe Phe Lys Asn Asp Thr Lys Ser Phe Ser Gly  
980 985 990

Leu Leu Asp Cys Gly Asn Cys Ser Arg Ile Phe His Val Glu Lys Leu  
995 1000 1005

Met Asn Thr Asn Leu Val Phe Ile Met Val Glu Ser Lys Gly Thr  
1010 1015 1020

Cys Pro Cys Asp Thr Arg Leu Leu Met Gln Ala Glu Gln Thr Ser  
1025 1030 1035

Asp Gly Pro Asp Pro Cys Asp Met Val Lys Gln Pro Arg Tyr Arg  
1040 1045 1050

Lys Gly Pro Asp Val Cys Phe Asp Asn Asn Val Leu Glu Asp Tyr  
1055 1060 1065

Thr Asp Cys Gly Gly Val Ser Gly Leu Asn Pro Ser Leu Trp Ser  
1070 1075 1080

Ile Phe Gly Leu Gln Phe Ile Leu Leu Trp Leu Val Ser Gly Ser  
1085 1090 1095

Arg His Tyr Leu Leu  
1100

<210> 26  
<211> 1091  
<212> PRT  
<213> Mus musculus

<400> 26

Met Ala Ala Gly Cys Leu Leu Ala Leu Thr Leu Thr Leu Phe Gln Ser  
1 5 10 15

Gly Leu Ile Gly Pro Ser Ser Glu Glu Pro Phe Pro Ser Pro Val Thr  
20 25 30

Ile Lys Ser Trp Val Asp Lys Met Gln Glu Asp Leu Val Thr Leu Ala  
35 40 45

Lys Thr Ala Ser Gly Val Thr Gln Leu Ala Asp Ile Tyr Glu Lys Tyr  
50 55 60

Gln Asp Leu Tyr Thr Val Glu Pro Asn Asn Ala Arg Gln Leu Val Glu  
65 70 75 80

20557A US Sequence Listing as filed

Ile Ala Ala Arg Asp Ile Glu Lys Leu Leu Ser Asn Arg Ser Lys Ala  
85 90 95

Leu Val Arg Leu Ala Met Glu Ala Glu Lys Val Gln Ala Ala His Gln  
100 105 110

Trp Arg Glu Asp Phe Ala Ser Asn Glu Val Val Tyr Tyr Asn Ala Lys  
115 120 125

Asp Asp Leu Asp Pro Glu Arg Asn Glu Ser Glu Pro Gly Ser Gln Arg  
130 135 140

Ile Lys Pro Val Phe Ile Glu Asp Ala Asn Phe Gly Arg Gln Ile Ser  
145 150 155 160

Tyr Gln His Ala Ala Val His Ile Pro Thr Asp Ile Tyr Glu Gly Ser  
165 170 175

Thr Ile Val Leu Asn Glu Leu Asn Trp Thr Ser Ala Leu Asp Glu Val  
180 185 190

Phe Lys Arg Asn Arg Asp Glu Asp Pro Thr Leu Leu Trp Gln Val Phe  
195 200 205

Gly Ser Ala Thr Gly Leu Ala Arg Tyr Tyr Pro Ala Ser Pro Trp Val  
210 215 220

Asp Asn Ser Arg Thr Pro Asn Lys Ile Asp Leu Tyr Asp Val Arg Arg  
225 230 235 240

Arg Pro Trp Tyr Ile Gln Gly Ala Ala Ser Pro Lys Asp Met Leu Ile  
245 250 255

Leu Val Asp Val Ser Gly Ser Val Ser Gly Leu Thr Leu Lys Leu Ile  
260 265 270

Arg Thr Ser Val Ser Glu Met Leu Glu Thr Leu Ser Asp Asp Asp Phe  
275 280 285

Val Asn Val Ala Ser Phe Asn Ser Asn Ala Gln Asp Val Ser Cys Phe  
290 295 300

Gln His Leu Val Gln Ala Asn Val Arg Asn Lys Lys Val Leu Lys Asp  
305 310 315 320

Ala Val Asn Asn Ile Thr Ala Lys Gly Ile Thr Asp Tyr Lys Lys Gly  
325 330 335

20557A US Sequence Listing as filed

Phe Ser Phe Ala Phe Glu Gln Leu Leu Asn Tyr Asn Val Ser Arg Ala  
340 345 350

Asn Cys Asn Lys Ile Ile Met Leu Phe Thr Asp Gly Gly Glu Glu Arg  
355 360 365

Ala Gln Glu Ile Phe Ala Lys Tyr Asn Lys Asp Lys Lys Val Arg Val  
370 375 380

Phe Thr Phe Ser Val Gly Gln His Asn Tyr Asp Arg Gly Pro Ile Gln  
385 390 395 400

Trp Met Ala Cys Glu Asn Lys Gly Tyr Tyr Tyr Glu Ile Pro Ser Ile  
405 410 415

Gly Ala Ile Arg Ile Asn Thr Gln Glu Tyr Leu Asp Val Leu Gly Arg  
420 425 430

Pro Met Val Leu Ala Gly Asp Lys Ala Lys Gln Val Gln Trp Thr Asn  
435 440 445

Val Tyr Leu Asp Ala Leu Glu Leu Gly Leu Val Ile Thr Gly Thr Leu  
450 455 460

Pro Val Phe Asn Val Thr Gly Gln Ser Glu Asn Lys Thr Asn Leu Lys  
465 470 475 480

Asn Gln Leu Ile Leu Gly Val Met Gly Val Asp Val Ser Leu Glu Asp  
485 490 495

Ile Lys Arg Leu Thr Pro Arg Phe Thr Leu Cys Pro Asn Gly Tyr Tyr  
500 505 510

Phe Ala Ile Asp Pro Asn Gly Tyr Val Leu Leu His Pro Asn Leu Gln  
515 520 525

Pro Lys Asn Pro Lys Ser Gln Glu Pro Val Thr Leu Asp Phe Leu Asp  
530 535 540

Ala Glu Leu Glu Asn Glu Ile Lys Val Glu Ile Arg Asn Lys Met Ile  
545 550 555 560

Asp Gly Glu Ser Gly Glu Lys Thr Phe Arg Thr Leu Val Lys Ser Gln  
565 570 575

Asp Glu Arg Tyr Ile Asp Lys Gly Asn Arg Thr Tyr Thr Trp Thr Pro  
580 585 590

20557A US Sequence Listing as filed

Val Asn Gly Thr Asp Tyr Ser Leu Ala Leu Val Leu Pro Thr Tyr Ser  
595 600 605

Phe Tyr Tyr Ile Lys Ala Lys Leu Glu Glu Thr Ile Thr Gln Ala Arg  
610 615 620

Ser Lys Lys Gly Lys Met Lys Asp Ser Glu Thr Leu Lys Pro Asp Asn  
625 630 635 640

Phe Glu Glu Ser Gly Tyr Thr Phe Ile Ala Pro Arg Glu Tyr Cys Asn  
645 650 655

Asp Leu Lys Pro Ser Asp Asn Asn Thr Glu Phe Leu Leu Asn Phe Asn  
660 665 670

Glu Phe Ile Asp Arg Lys Thr Pro Asn Asn Pro Ser Cys Asn Thr Asp  
675 680 685

Leu Ile Asn Arg Ile Leu Leu Asp Ala Gly Phe Thr Asn Glu Leu Val  
690 695 700

Gln Asn Tyr Trp Ser Lys Gln Lys Asn Ile Lys Gly Val Lys Ala Arg  
705 710 715 720

Phe Val Val Thr Asp Gly Gly Ile Thr Arg Val Tyr Pro Lys Glu Ala  
725 730 735

Gly Glu Asn Trp Gln Glu Asn Pro Glu Thr Tyr Glu Asp Ser Phe Tyr  
740 745 750

Lys Arg Ser Leu Asp Asn Asp Asn Tyr Val Phe Thr Ala Pro Tyr Phe  
755 760 765

Asn Lys Ser Gly Pro Gly Ala Tyr Glu Ser Gly Ile Met Val Ser Lys  
770 775 780

Ala Val Glu Leu Tyr Ile Gln Gly Lys Leu Leu Lys Pro Ala Val Val  
785 790 795 800

Gly Ile Lys Ile Asp Val Asn Ser Trp Ile Glu Asn Phe Thr Lys Thr  
805 810 815

Ser Ile Arg Asp Pro Cys Ala Gly Pro Val Cys Asp Cys Lys Arg Asn  
820 825 830

Ser Asp Val Met Asp Cys Val Ile Leu Asp Asp Gly Gly Phe Leu Leu

20557A US Sequence Listing as filed

835

840

845

Met Ala Asn His Asp Asp Tyr Thr Asn Gln Ile Gly Arg Phe Phe Gly  
850 855 860

Glu Ile Asp Pro Ser Met Met Arg His Leu Val Asn Ile Ser Leu Tyr  
865 870 875 880

Ala Phe Asn Lys Ser Tyr Asp Tyr Gln Ser Val Cys Asp Pro Gly Ala  
885 890 895

Ala Pro Lys Gln Gly Ala Gly His Arg Ser Ala Tyr Val Pro Ser Ile  
900 905 910

Ala Asp Ile Leu Gln Ile Gly Trp Trp Ala Thr Ala Ala Ala Trp Ser  
915 920 925

Ile Leu Gln Gln Leu Leu Leu Ser Leu Thr Phe Pro Arg Leu Leu Glu  
930 935 940

Ala Val Glu Met Glu Glu Asp Asp Phe Thr Ala Ser Leu Ser Lys Gln  
945 950 955 960

Ser Cys Ile Thr Glu Gln Thr Gln Tyr Phe Phe Lys Asn Asp Thr Lys  
965 970 975

Ser Phe Ser Gly Leu Leu Asp Cys Gly Asn Cys Ser Arg Ile Phe His  
980 985 990

Val Glu Lys Leu Met Asn Thr Asn Leu Val Phe Ile Met Val Glu Ser  
995 1000 1005

Lys Gly Thr Cys Pro Cys Asp Thr Arg Leu Leu Met Gln Ala Glu  
1010 1015 1020

Gln Thr Ser Asp Gly Pro Asp Pro Cys Asp Met Val Lys Gln Pro  
1025 1030 1035

Arg Tyr Arg Lys Gly Pro Asp Val Cys Phe Asp Asn Asn Val Leu  
1040 1045 1050

Glu Asp Tyr Thr Asp Cys Gly Gly Val Ser Gly Leu Asn Pro Ser  
1055 1060 1065

Leu Trp Ser Ile Phe Gly Leu Gln Phe Ile Leu Leu Trp Leu Val  
1070 1075 1080



20557A US Sequence Listing as filed

Ser Gly Ser Arg His Tyr Leu Leu  
1085 1090

<210> 27  
<211> 1086  
<212> PRT  
<213> Mus musculus

<400> 27

Met Ala Ala Gly Cys Leu Leu Ala Leu Thr Leu Thr Leu Phe Gln Ser  
1 5 10 15

Gly Leu Ile Gly Pro Ser Ser Glu Glu Pro Phe Pro Ser Pro Val Thr  
20 25 30

Ile Lys Ser Trp Val Asp Lys Met Gln Glu Asp Leu Val Thr Leu Ala  
35 40 45

Lys Thr Ala Ser Gly Val Thr Gln Leu Ala Asp Ile Tyr Glu Lys Tyr  
50 55 60

Gln Asp Leu Tyr Thr Val Glu Pro Asn Asn Ala Arg Gln Leu Val Glu  
65 70 75 80

Ile Ala Ala Arg Asp Ile Glu Lys Leu Leu Ser Asn Arg Ser Lys Ala  
85 90 95

Leu Val Arg Leu Ala Met Glu Ala Glu Lys Val Gln Ala Ala His Gln  
100 105 110

Trp Arg Glu Asp Phe Ala Ser Asn Glu Val Val Tyr Tyr Asn Ala Lys  
115 120 125

Asp Asp Leu Asp Pro Glu Arg Asn Glu Ser Glu Pro Gly Ser Gln Arg  
130 135 140

Ile Lys Pro Val Phe Ile Glu Asp Ala Asn Phe Gly Arg Gln Ile Ser  
145 150 155 160

Tyr Gln His Ala Ala Val His Ile Pro Thr Asp Ile Tyr Glu Gly Ser  
165 170 175

Thr Ile Val Leu Asn Glu Leu Asn Trp Thr Ser Ala Leu Asp Glu Val  
180 185 190

Phe Lys Arg Asn Arg Asp Glu Asp Pro Thr Leu Leu Trp Gln Val Phe  
195 200 205

20557A US Sequence Listing as filed

Gly Ser Ala Thr Gly Leu Ala Arg Tyr Tyr Pro Ala Ser Pro Trp Val  
210 215 220

Asp Asn Ser Arg Thr Pro Asn Lys Ile Asp Leu Tyr Asp Val Arg Arg  
225 230 235 240

Arg Pro Trp Tyr Ile Gln Gly Ala Ala Ser Pro Lys Asp Met Leu Ile  
245 250 255

Leu Val Asp Val Ser Gly Ser Val Ser Gly Leu Thr Leu Lys Leu Ile  
260 265 270

Arg Thr Ser Val Ser Glu Met Leu Glu Thr Leu Ser Asp Asp Asp Phe  
275 280 285

Val Asn Val Ala Ser Phe Asn Ser Asn Ala Gln Asp Val Ser Cys Phe  
290 295 300

Gln His Leu Val Gln Ala Asn Val Arg Asn Lys Lys Val Leu Lys Asp  
305 310 315 320

Ala Val Asn Asn Ile Thr Ala Lys Gly Ile Thr Asp Tyr Lys Lys Gly  
325 330 335

Phe Ser Phe Ala Phe Glu Gln Leu Leu Asn Tyr Asn Val Ser Arg Ala  
340 345 350

Asn Cys Asn Lys Ile Ile Met Leu Phe Thr Asp Gly Gly Glu Glu Arg  
355 360 365

Ala Gln Glu Ile Phe Ala Lys Tyr Asn Lys Asp Lys Lys Val Arg Val  
370 375 380

Phe Thr Phe Ser Val Gly Gln His Asn Tyr Asp Arg Gly Pro Ile Gln  
385 390 395 400

Trp Met Ala Cys Glu Asn Lys Gly Tyr Tyr Tyr Glu Ile Pro Ser Ile  
405 410 415

Gly Ala Ile Arg Ile Asn Thr Gln Glu Tyr Leu Asp Val Leu Gly Arg  
420 425 430

Pro Met Val Leu Ala Gly Asp Lys Ala Lys Gln Val Gln Trp Thr Asn  
435 440 445

Val Tyr Leu Asp Ala Leu Glu Leu Gly Leu Val Ile Thr Gly Thr Leu  
450 455 460

20557A US Sequence Listing as filed

Pro Val Phe Asn Val Thr Gly Gln Ser Glu Asn Lys Thr Asn Leu Lys  
465 470 475 480

Asn Gln Leu Ile Leu Gly Val Met Gly Val Asp Val Ser Leu Glu Asp  
485 490 495

Ile Lys Arg Leu Thr Pro Arg Phe Thr Leu Cys Pro Asn Gly Tyr Tyr  
500 505 510

Phe Ala Ile Asp Pro Asn Gly Tyr Val Leu Leu His Pro Asn Leu Gln  
515 520 525

Pro Lys Glu Pro Val Thr Leu Asp Phe Leu Asp Ala Glu Leu Glu Asn  
530 535 540

Glu Ile Lys Val Glu Ile Arg Asn Lys Met Ile Asp Gly Glu Ser Gly  
545 550 555 560

Glu Lys Thr Phe Arg Thr Leu Val Lys Ser Gln Asp Glu Arg Tyr Ile  
565 570 575

Asp Lys Gly Asn Arg Thr Tyr Thr Trp Thr Pro Val Asn Gly Thr Asp  
580 585 590

Tyr Ser Leu Ala Leu Val Leu Pro Thr Tyr Ser Phe Tyr Tyr Ile Lys  
595 600 605

Ala Lys Leu Glu Glu Thr Ile Thr Gln Ala Arg Ser Lys Lys Gly Lys  
610 615 620

Met Lys Asp Ser Glu Thr Leu Lys Pro Asp Asn Phe Glu Glu Ser Gly  
625 630 635 640

Tyr Thr Phe Ile Ala Pro Arg Glu Tyr Cys Asn Asp Leu Lys Pro Ser  
645 650 655

Asp Asn Asn Thr Glu Phe Leu Leu Asn Phe Asn Glu Phe Ile Asp Arg  
660 665 670

Lys Thr Pro Asn Asn Pro Ser Cys Asn Thr Asp Leu Ile Asn Arg Ile  
675 680 685

Leu Leu Asp Ala Gly Phe Thr Asn Glu Leu Val Gln Asn Tyr Trp Ser  
690 695 700

Lys Gln Lys Asn Ile Lys Gly Val Lys Ala Arg Phe Val Val Thr Asp  
705 710 715 720

20557A US Sequence Listing as filed

Gly Gly Ile Thr Arg Val Tyr Pro Lys Glu Ala Gly Glu Asn Trp Gln  
725 730 735

Glu Asn Pro Glu Thr Tyr Glu Asp Ser Phe Tyr Lys Arg Ser Leu Asp  
740 745 750

Asn Asp Asn Tyr Val Phe Thr Ala Pro Tyr Phe Asn Lys Ser Gly Pro  
755 760 765

Gly Ala Tyr Glu Ser Gly Ile Met Val Ser Lys Ala Val Glu Leu Tyr  
770 775 780

Ile Gln Gly Lys Leu Leu Lys Pro Ala Val Val Gly Ile Lys Ile Asp  
785 790 795 800

Val Asn Ser Trp Ile Glu Asn Phe Thr Lys Thr Ser Ile Arg Asp Pro  
805 810 815

Cys Ala Gly Pro Val Cys Asp Cys Lys Arg Asn Ser Asp Val Met Asp  
820 825 830

Cys Val Ile Leu Asp Asp Gly Gly Phe Leu Leu Met Ala Asn His Asp  
835 840 845

Asp Tyr Thr Asn Gln Ile Gly Arg Phe Phe Gly Glu Ile Asp Pro Ser  
850 855 860

Met Met Arg His Leu Val Asn Ile Ser Leu Tyr Ala Phe Asn Lys Ser  
865 870 875 880

Tyr Asp Tyr Gln Ser Val Cys Asp Pro Gly Ala Ala Pro Lys Gln Gly  
885 890 895

Ala Gly His Arg Ser Ala Tyr Val Pro Ser Ile Ala Asp Ile Leu Gln  
900 905 910

Ile Gly Trp Trp Ala Thr Ala Ala Ala Trp Ser Ile Leu Gln Gln Leu  
915 920 925

Leu Leu Ser Leu Thr Phe Pro Arg Leu Leu Glu Ala Val Glu Met Glu  
930 935 940

Glu Asp Asp Phe Thr Ala Ser Leu Ser Lys Gln Ser Cys Ile Thr Glu  
945 950 955 960

Gln Thr Gln Tyr Phe Phe Lys Asn Asp Thr Lys Ser Phe Ser Gly Leu  
Page 36

20557A US Sequence Listing as filed

965

970

975

Leu Asp Cys Gly Asn Cys Ser Arg Ile Phe His Val Glu Lys Leu Met  
980 985 990

Asn Thr Asn Leu Val Phe Ile Met Val Glu Ser Lys Gly Thr Cys Pro  
995 1000 1005

Cys Asp Thr Arg Leu Leu Met Gln Ala Glu Gln Thr Ser Asp Gly  
1010 1015 1020

Pro Asp Pro Cys Asp Met Val Lys Gln Pro Arg Tyr Arg Lys Gly  
1025 1030 1035

Pro Asp Val Cys Phe Asp Asn Asn Val Leu Glu Asp Tyr Thr Asp  
1040 1045 1050

Cys Gly Gly Val Ser Gly Leu Asn Pro Ser Leu Trp Ser Ile Phe  
1055 1060 1065

Gly Leu Gln Phe Ile Leu Leu Trp Leu Val Ser Gly Ser Arg His  
1070 1075 1080

Tyr Leu Leu  
1085

<210> 28  
<211> 1079  
<212> PRT  
<213> Mus musculus

<400> 28

Met Ala Ala Gly Cys Leu Leu Ala Leu Thr Leu Thr Leu Phe Gln Ser  
1 5 10 15

Gly Leu Ile Gly Pro Ser Ser Glu Glu Pro Phe Pro Ser Pro Val Thr  
20 25 30

Ile Lys Ser Trp Val Asp Lys Met Gln Glu Asp Leu Val Thr Leu Ala  
35 40 45

Lys Thr Ala Ser Gly Val Thr Gln Leu Ala Asp Ile Tyr Glu Lys Tyr  
50 55 60

Gln Asp Leu Tyr Thr Val Glu Pro Asn Asn Ala Arg Gln Leu Val Glu  
65 70 75 80

Ile Ala Ala Arg Asp Ile Glu Lys Leu Leu Ser Asn Arg Ser Lys Ala  
Page 37

20557A US Sequence Listing as filed

85

90

95

Leu Val Arg Leu Ala Met Glu Ala Glu Lys Val Gln Ala Ala His Gln  
100 105 110

Trp Arg Glu Asp Phe Ala Ser Asn Glu Val Val Tyr Tyr Asn Ala Lys  
115 120 125

Asp Asp Leu Asp Pro Glu Arg Asn Glu Ser Glu Pro Gly Ser Gln Arg  
130 135 140

Ile Lys Pro Val Phe Ile Glu Asp Ala Asn Phe Gly Arg Gln Ile Ser  
145 150 155 160

Tyr Gln His Ala Ala Val His Ile Pro Thr Asp Ile Tyr Glu Gly Ser  
165 170 175

Thr Ile Val Leu Asn Glu Leu Asn Trp Thr Ser Ala Leu Asp Glu Val  
180 185 190

Phe Lys Arg Asn Arg Asp Glu Asp Pro Thr Leu Leu Trp Gln Val Phe  
195 200 205

Gly Ser Ala Thr Gly Leu Ala Arg Tyr Tyr Pro Ala Ser Pro Trp Val  
210 215 220

Asp Asn Ser Arg Thr Pro Asn Lys Ile Asp Leu Tyr Asp Val Arg Arg  
225 230 235 240

Arg Pro Trp Tyr Ile Gln Gly Ala Ala Ser Pro Lys Asp Met Leu Ile  
245 250 255

Leu Val Asp Val Ser Gly Ser Val Ser Gly Leu Thr Leu Lys Leu Ile  
260 265 270

Arg Thr Ser Val Ser Glu Met Leu Glu Thr Leu Ser Asp Asp Asp Phe  
275 280 285

Val Asn Val Ala Ser Phe Asn Ser Asn Ala Gln Asp Val Ser Cys Phe  
290 295 300

Gln His Leu Val Gln Ala Asn Val Arg Asn Lys Lys Val Leu Lys Asp  
305 310 315 320

Ala Val Asn Asn Ile Thr Ala Lys Gly Ile Thr Asp Tyr Lys Lys Gly  
325 330 335

20557A US Sequence Listing as filed

Phe Ser Phe Ala Phe Glu Gln Leu Leu Asn Tyr Asn Val Ser Arg Ala  
340 345 350

Asn Cys Asn Lys Ile Ile Met Leu Phe Thr Asp Gly Gly Glu Glu Arg  
355 360 365

Ala Gln Glu Ile Phe Ala Lys Tyr Asn Lys Asp Lys Lys Val Arg Val  
370 375 380

Phe Thr Phe Ser Val Gly Gln His Asn Tyr Asp Arg Gly Pro Ile Gln  
385 390 395 400

Trp Met Ala Cys Glu Asn Lys Gly Tyr Tyr Tyr Glu Ile Pro Ser Ile  
405 410 415

Gly Ala Ile Arg Ile Asn Thr Gln Glu Tyr Leu Asp Val Leu Gly Arg  
420 425 430

Pro Met Val Leu Ala Gly Asp Lys Ala Lys Gln Val Gln Trp Thr Asn  
435 440 445

Val Tyr Leu Asp Ala Leu Glu Leu Gly Leu Val Ile Thr Gly Thr Leu  
450 455 460

Pro Val Phe Asn Val Thr Gly Gln Ser Glu Asn Lys Thr Asn Leu Lys  
465 470 475 480

Asn Gln Leu Ile Leu Gly Val Met Gly Val Asp Val Ser Leu Glu Asp  
485 490 495

Ile Lys Arg Leu Thr Pro Arg Phe Thr Leu Cys Pro Asn Gly Tyr Tyr  
500 505 510

Phe Ala Ile Asp Pro Asn Gly Tyr Val Leu Leu His Pro Asn Leu Gln  
515 520 525

Pro Lys Glu Pro Val Thr Leu Asp Phe Leu Asp Ala Glu Leu Glu Asn  
530 535 540

Glu Ile Lys Val Glu Ile Arg Asn Lys Met Ile Asp Gly Glu Ser Gly  
545 550 555 560

Glu Lys Thr Phe Arg Thr Leu Val Lys Ser Gln Asp Glu Arg Tyr Ile  
565 570 575

Asp Lys Gly Asn Arg Thr Tyr Thr Trp Thr Pro Val Asn Gly Thr Asp  
580 585 590

20557A US Sequence Listing as filed

Tyr Ser Leu Ala Leu Val Leu Pro Thr Tyr Ser Phe Tyr Tyr Ile Lys  
595 600 605

Ala Lys Leu Glu Glu Thr Ile Thr Gln Ala Arg Tyr Ser Glu Thr Leu  
610 615 620

Lys Pro Asp Asn Phe Glu Glu Ser Gly Tyr Thr Phe Ile Ala Pro Arg  
625 630 635 640 645

Glu Tyr Cys Asn Asp Leu Lys Pro Ser Asp Asn Asn Thr Glu Phe Leu  
645 650 655

Leu Asn Phe Asn Glu Phe Ile Asp Arg Lys Thr Pro Asn Asn Pro Ser  
660 665 670

Cys Asn Thr Asp Leu Ile Asn Arg Ile Leu Leu Asp Ala Gly Phe Thr  
675 680 685

Asn Glu Leu Val Gln Asn Tyr Trp Ser Lys Gln Lys Asn Ile Lys Gly  
690 695 700

Val Lys Ala Arg Phe Val Val Thr Asp Gly Gly Ile Thr Arg Val Tyr  
705 710 715 720

Pro Lys Glu Ala Gly Glu Asn Trp Gln Glu Asn Pro Glu Thr Tyr Glu  
725 730 735

Asp Ser Phe Tyr Lys Arg Ser Leu Asp Asn Asp Asn Tyr Val Phe Thr  
740 745 750

Ala Pro Tyr Phe Asn Lys Ser Gly Pro Gly Ala Tyr Glu Ser Gly Ile  
755 760 765

Met Val Ser Lys Ala Val Glu Leu Tyr Ile Gln Gly Lys Leu Leu Lys  
770 775 780

Pro Ala Val Val Gly Ile Lys Ile Asp Val Asn Ser Trp Ile Glu Asn  
785 790 795 800

Phe Thr Lys Thr Ser Ile Arg Asp Pro Cys Ala Gly Pro Val Cys Asp  
805 810 815

Cys Lys Arg Asn Ser Asp Val Met Asp Cys Val Ile Leu Asp Asp Gly  
820 825 830

Gly Phe Leu Leu Met Ala Asn His Asp Asp Tyr Thr Asn Gln Ile Gly  
835 840 845



20557A US Sequence Listing as filed

Arg Phe Phe Gly Glu Ile Asp Pro Ser Met Met Arg His Leu Val Asn  
850 855 860

Ile Ser Leu Tyr Ala Phe Asn Lys Ser Tyr Asp Tyr Gln Ser Val Cys  
865 870 875 880

Asp Pro Gly Ala Ala Pro Lys Gln Gly Ala Gly His Arg Ser Ala Tyr  
885 890 895

Val Pro Ser Ile Ala Asp Ile Leu Gln Ile Gly Trp Trp Ala Thr Ala  
900 905 910

Ala Ala Trp Ser Ile Leu Gln Gln Leu Leu Leu Ser Leu Thr Phe Pro  
915 920 925

Arg Leu Leu Glu Ala Val Glu Met Glu Glu Asp Asp Phe Thr Ala Ser  
930 935 940

Leu Ser Lys Gln Ser Cys Ile Thr Glu Gln Thr Gln Tyr Phe Phe Lys  
945 950 955 960

Asn Asp Thr Lys Ser Phe Ser Gly Leu Leu Asp Cys Gly Asn Cys Ser  
965 970 975

Arg Ile Phe His Val Glu Lys Leu Met Asn Thr Asn Leu Val Phe Ile  
980 985 990

Met Val Glu Ser Lys Gly Thr Cys Pro Cys Asp Thr Arg Leu Leu Met  
995 1000 1005

Gln Ala Glu Gln Thr Ser Asp Gly Pro Asp Pro Cys Asp Met Val  
1010 1015 1020

Lys Gln Pro Arg Tyr Arg Lys Gly Pro Asp Val Cys Phe Asp Asn  
1025 1030 1035

Asn Val Leu Glu Asp Tyr Thr Asp Cys Gly Gly Val Ser Gly Leu  
1040 1045 1050

Asn Pro Ser Leu Trp Ser Ile Phe Gly Leu Gln Phe Ile Leu Leu  
1055 1060 1065

Trp Leu Val Ser Gly Ser Arg His Tyr Leu Leu  
1070 1075

20557A US Sequence Listing as filed

<211> 1084

<212> PRT

<213> Mus musculus

<400> 29

Met Ala Ala Gly Cys Leu Leu Ala Leu Thr Leu Thr Leu Phe Gln Ser  
1 5 10 15

Gly Leu Ile Gly Pro Ser Ser Glu Glu Pro Phe Pro Ser Pro Val Thr  
20 25 30

Ile Lys Ser Trp Val Asp Lys Met Gln Glu Asp Leu Val Thr Leu Ala  
35 40 45

Lys Thr Ala Ser Gly Val Thr Gln Leu Ala Asp Ile Tyr Glu Lys Tyr  
50 55 60

Gln Asp Leu Tyr Thr Val Glu Pro Asn Asn Ala Arg Gln Leu Val Glu  
65 70 75 80

Ile Ala Ala Arg Asp Ile Glu Lys Leu Leu Ser Asn Arg Ser Lys Ala  
85 90 95

Leu Val Arg Leu Ala Met Glu Ala Glu Lys Val Gln Ala Ala His Gln  
100 105 110

Trp Arg Glu Asp Phe Ala Ser Asn Glu Val Val Tyr Tyr Asn Ala Lys  
115 120 125

Asp Asp Leu Asp Pro Glu Arg Asn Glu Ser Glu Pro Gly Ser Gln Arg  
130 135 140

Ile Lys Pro Val Phe Ile Glu Asp Ala Asn Phe Gly Arg Gln Ile Ser  
145 150 155 160

Tyr Gln His Ala Ala Val His Ile Pro Thr Asp Ile Tyr Glu Gly Ser  
165 170 175

Thr Ile Val Leu Asn Glu Leu Asn Trp Thr Ser Ala Leu Asp Glu Val  
180 185 190

Phe Lys Arg Asn Arg Asp Glu Asp Pro Thr Leu Leu Trp Gln Val Phe  
195 200 205

Gly Ser Ala Thr Gly Leu Ala Arg Tyr Tyr Pro Ala Ser Pro Trp Val  
210 215 220

Asp Asn Ser Arg Thr Pro Asn Lys Ile Asp Leu Tyr Asp Val Arg Arg

## 20557A US Sequence Listing as filed

225						230					235					240
Arg	Pro	Trp	Tyr	Ile 245	Gln	Gly	Ala	Ala	Ser 250	Pro	Lys	Asp	Met	Leu 255	Ile	
Leu	Val	Asp	Val 260	Ser	Gly	Ser	Val	Ser 265	Gly	Leu	Thr	Leu	Lys 270	Leu	Ile	
Arg	Thr	Ser 275	Val	Ser	Glu	Met	Leu 280	Glu	Thr	Leu	Ser	Asp 285	Asp	Asp	Phe	
Val	Asn 290	Val	Ala	Ser	Phe	Asn 295	Ser	Asn	Ala	Gln	Asp 300	Val	Ser	Cys	Phe	
Gln 305	His	Leu	Val	Gln	Ala 310	Asn	Val	Arg	Asn	Lys 315	Lys	Val	Leu	Lys	Asp 320	
Ala	Val	Asn	Asn	Ile 325	Thr	Ala	Lys	Gly	Ile 330	Thr	Asp	Tyr	Lys	Lys 335	Gly	
Phe	Ser	Phe	Ala 340	Phe	Glu	Gln	Leu	Leu 345	Asn	Tyr	Asn	Val	Ser 350	Arg	Ala	
Asn	Cys	Asn 355	Lys	Ile	Ile	Met	Leu 360	Phe	Thr	Asp	Gly	Gly 365	Glu	Glu	Arg	
Ala	Gln 370	Glu	Ile	Phe	Ala	Lys 375	Tyr	Asn	Lys	Asp	Lys 380	Lys	Val	Arg	Val	
Phe 385	Thr	Phe	Ser	Val	Gly 390	Gln	His	Asn	Tyr	Asp 395	Arg	Gly	Pro	Ile	Gln 400	
Trp	Met	Ala	Cys	Glu 405	Asn	Lys	Gly	Tyr	Tyr 410	Tyr	Glu	Ile	Pro	Ser 415	Ile	
Gly	Ala	Ile	Arg 420	Ile	Asn	Thr	Gln	Glu 425	Tyr	Leu	Asp	Val	Leu 430	Gly	Arg	
Pro	Met	Val 435	Leu	Ala	Gly	Asp	Lys 440	Ala	Lys	Gln	Val	Gln 445	Trp	Thr	Asn	
Val	Tyr 450	Leu	Asp	Ala	Leu	Glu 455	Leu	Gly	Leu	Val	Ile 460	Thr	Gly	Thr	Leu	
Pro 465	Val	Phe	Asn	Val	Thr 470	Gly	Gln	Ser	Glu	Asn 475	Lys	Thr	Asn	Leu	Lys 480	

20557A US Sequence Listing as filed

Asn Gln Leu Ile Leu Gly Val Met Gly Val Asp Val Ser Leu Glu Asp  
485 490 495

Ile Lys Arg Leu Thr Pro Arg Phe Thr Leu Cys Pro Asn Gly Tyr Tyr  
500 505 510

Phe Ala Ile Asp Pro Asn Gly Tyr Val Leu Leu His Pro Asn Leu Gln  
515 520 525

Pro Lys Asn Pro Lys Ser Gln Glu Pro Val Thr Leu Asp Phe Leu Asp  
530 535 540

Ala Glu Leu Glu Asn Glu Ile Lys Val Glu Ile Arg Asn Lys Met Ile  
545 550 555 560

Asp Gly Glu Ser Gly Glu Lys Thr Phe Arg Thr Leu Val Lys Ser Gln  
565 570 575

Asp Glu Arg Tyr Ile Asp Lys Gly Asn Arg Thr Tyr Thr Trp Thr Pro  
580 585 590

Val Asn Gly Thr Asp Tyr Ser Leu Ala Leu Val Leu Pro Thr Tyr Ser  
595 600 605

Phe Tyr Tyr Ile Lys Ala Lys Leu Glu Glu Thr Ile Thr Gln Ala Arg  
610 615 620

Tyr Ser Glu Thr Leu Lys Pro Asp Asn Phe Glu Glu Ser Gly Tyr Thr  
625 630 635 640

Phe Ile Ala Pro Arg Glu Tyr Cys Asn Asp Leu Lys Pro Ser Asp Asn  
645 650 655

Asn Thr Glu Phe Leu Leu Asn Phe Asn Glu Phe Ile Asp Arg Lys Thr  
660 665 670

Pro Asn Asn Pro Ser Cys Asn Thr Asp Leu Ile Asn Arg Ile Leu Leu  
675 680 685

Asp Ala Gly Phe Thr Asn Glu Leu Val Gln Asn Tyr Trp Ser Lys Gln  
690 695 700

Lys Asn Ile Lys Gly Val Lys Ala Arg Phe Val Val Thr Asp Gly Gly  
705 710 715 720

Ile Thr Arg Val Tyr Pro Lys Glu Ala Gly Glu Asn Trp Gln Glu Asn  
725 730 735

20557A US Sequence Listing as filed

Pro Glu Thr Tyr Glu Asp Ser Phe Tyr Lys Arg Ser Leu Asp Asn Asp  
740 745 750

Asn Tyr Val Phe Thr Ala Pro Tyr Phe Asn Lys Ser Gly Pro Gly Ala  
755 760 765

Tyr Glu Ser Gly Ile Met Val Ser Lys Ala Val Glu Leu Tyr Ile Gln  
770 775 780

Gly Lys Leu Leu Lys Pro Ala Val Val Gly Ile Lys Ile Asp Val Asn  
785 790 800

Ser Trp Ile Glu Asn Phe Thr Lys Thr Ser Ile Arg Asp Pro Cys Ala  
805 810 815

Gly Pro Val Cys Asp Cys Lys Arg Asn Ser Asp Val Met Asp Cys Val  
820 825 830

Ile Leu Asp Asp Gly Gly Phe Leu Leu Met Ala Asn His Asp Asp Tyr  
835 840 845

Thr Asn Gln Ile Gly Arg Phe Phe Gly Glu Ile Asp Pro Ser Met Met  
850 855 860

Arg His Leu Val Asn Ile Ser Leu Tyr Ala Phe Asn Lys Ser Tyr Asp  
865 870 875 880

Tyr Gln Ser Val Cys Asp Pro Gly Ala Ala Pro Lys Gln Gly Ala Gly  
885 890 895

His Arg Ser Ala Tyr Val Pro Ser Ile Ala Asp Ile Leu Gln Ile Gly  
900 905 910

Trp Trp Ala Thr Ala Ala Ala Trp Ser Ile Leu Gln Gln Leu Leu Leu  
915 920 925

Ser Leu Thr Phe Pro Arg Leu Leu Glu Ala Val Glu Met Glu Glu Asp  
930 935 940

Asp Phe Thr Ala Ser Leu Ser Lys Gln Ser Cys Ile Thr Glu Gln Thr  
945 950 955 960

Gln Tyr Phe Phe Lys Asn Asp Thr Lys Ser Phe Ser Gly Leu Leu Asp  
965 970 975

Cys Gly Asn Cys Ser Arg Ile Phe His Val Glu Lys Leu Met Asn Thr  
980 985 990

20557A US Sequence Listing as filed

Asn Leu Val Phe Ile Met Val Glu Ser Lys Gly Thr Cys Pro Cys Asp  
995 1000 1005

Thr Arg Leu Leu Met Gln Ala Glu Gln Thr Ser Asp Gly Pro Asp  
1010 1015 1020

Pro Cys Asp Met Val Lys Gln Pro Arg Tyr Arg Lys Gly Pro Asp  
1025 1030 1035

Val Cys Phe Asp Asn Asn Val Leu Glu Asp Tyr Thr Asp Cys Gly  
1040 1045 1050

Gly Val Ser Gly Leu Asn Pro Ser Leu Trp Ser Ile Phe Gly Leu  
1055 1060 1065

Gln Phe Ile Leu Leu Trp Leu Val Ser Gly Ser Arg His Tyr Leu  
1070 1075 1080

Leu

<210> 30  
<211> 1091  
<212> PRT  
<213> Rattus norvegicus

<400> 30

Met Ala Ala Gly Cys Leu Leu Ala Leu Thr Leu Thr Leu Phe Gln Ser  
1 5 10 15

Trp Leu Ile Gly Pro Ser Ser Glu Glu Pro Phe Pro Ser Pro Val Thr  
20 25 30

Ile Lys Ser Trp Val Asp Lys Met Gln Glu Asp Leu Val Thr Leu Ala  
35 40 45

Lys Thr Ala Ser Gly Val Thr Gln Leu Ala Asp Ile Tyr Glu Lys Tyr  
50 55 60

Gln Asp Leu Tyr Thr Val Glu Pro Asn Asn Ala Arg Gln Leu Val Glu  
65 70 75 80

Ile Ala Ala Arg Asp Ile Glu Lys Leu Leu Ser Asn Arg Ser Lys Ala  
85 90 95

Leu Val Arg Leu Ala Met Glu Ala Glu Lys Val Gln Ala Ala His Gln  
100 105 110

20557A US Sequence Listing as filed

Trp Arg Glu Asp Phe Ala Ser Asn Glu Val Val Tyr Tyr Asn Ala Lys  
115 120 125

Asp Asp Leu Asp Pro Glu Arg Asn Glu Ser Glu Ser Gly Ser Gln Arg  
130 135 140

Ile Lys Pro Val Phe Ile Glu Asp Ala Asn Phe Gly Arg Gln Ile Ser  
145 150 155 160

Tyr Gln His Ala Ala Val His Ile Pro Thr Asp Ile Tyr Glu Gly Ser  
165 170 175

Thr Ile Val Leu Asn Glu Leu Asn Trp Thr Ser Ala Leu Asp Glu Val  
180 185 190

Phe Lys Arg Asn Arg Asp Glu Asp Pro Thr Leu Leu Trp Gln Val Phe  
195 200 205

Ala Ala Asp Arg Leu Ala Arg Tyr Tyr Pro Ala Ser Pro Trp Val Asp  
210 215 220

Asn Ser Arg Thr Pro Asn Lys Ile Asp Leu Tyr Asp Val Arg Arg Arg  
225 230 235 240

~~Pro Trp Tyr Ile Gln Gly Ala Ala Ser Pro Lys Asp Met Leu Ile Leu~~  
245 250 255

Val Asp Val Ser Gly Ser Val Ser Gly Leu Thr Leu Lys Leu Ile Arg  
260 265 270

Thr Ser Val Ser Glu Met Leu Glu Thr Leu Ser Asp Asp Asp Phe Val  
275 280 285

Asn Val Ala Ser Phe Asn Ser Asn Ala Gln Asp Val Ser Cys Phe Gln  
290 295 300

His Leu Val Gln Ala Asn Val Arg Asn Lys Lys Val Leu Lys Asp Ala  
305 310 315 320

Val Asn Asn Ile Thr Ala Lys Gly Ile Thr Asp Tyr Lys Lys Gly Phe  
325 330 335

Thr Phe Ala Phe Glu Gln Leu Leu Asn Tyr Asn Val Ser Arg Ala Asn  
340 345 350

Cys Asn Lys Ile Ile Met Leu Phe Thr Asp Gly Gly Glu Glu Arg Ala  
Page 47

20557A US Sequence Listing as filed

355

360

365

Gln Glu Ile Phe Ala Lys Tyr Asn Lys Asp Lys Lys Val Arg Val Phe  
370 375 380

Thr Phe Ser Val Gly Gln His Asn Tyr Asp Arg Gly Pro Ile Gln Trp  
385 390 395 400

Met Ala Cys Glu Asn Lys Gly Tyr Tyr Tyr Glu Ile Pro Ser Ile Gly  
405 410 415

Ala Ile Arg Ile Asn Thr Gln Glu Tyr Leu Asp Val Leu Gly Arg Pro  
420 425 430

Met Val Leu Ala Gly Asp Lys Ala Lys Gln Val Gln Trp Thr Asn Val  
435 440 445

Tyr Leu Asp Ala Leu Glu Leu Gly Leu Val Ile Thr Gly Thr Leu Pro  
450 455 460

Val Phe Asn Val Thr Gly Gln Ser Glu Asn Lys Thr Asn Leu Lys Asn  
465 470 475 480

Gln Leu Ile Leu Gly Val Met Gly Val Asp Val Ser Leu Glu Asp Ile  
485 490 495

Lys Arg Leu Thr Pro Arg Phe Thr Leu Cys Pro Asn Gly Tyr Tyr Phe  
500 505 510

Ala Ile Asp Pro Asn Gly Tyr Val Leu Leu His Pro Asn Leu Gln Pro  
515 520 525

Lys Asn Pro Lys Ser Gln Glu Pro Val Thr Leu Asp Phe Leu Asp Ala  
530 535 540

Glu Leu Glu Asn Asp Ile Lys Val Glu Ile Arg Asn Lys Met Ile Asp  
545 550 555 560

Gly Glu Ser Gly Glu Lys Thr Phe Arg Thr Leu Val Lys Ser Gln Asp  
565 570 575

Glu Arg Tyr Ile Asp Lys Gly Asn Arg Thr Tyr Thr Trp Thr Pro Val  
580 585 590

Asn Gly Thr Asp Tyr Arg Tyr Leu Ala Leu Val Leu Pro Thr Tyr Ser  
595 600 605



20557A US Sequence Listing as filed

Phe	Tyr	Tyr	Ile	Lys	Ala	Lys	Ile	Glu	Glu	Thr	Ile	Thr	Gln	Ala	Arg
610						615					620				
Ser	Lys	Lys	Gly	Lys	Met	Lys	Asp	Ser	Glu	Thr	Leu	Lys	Pro	Asp	Asn
625					630					635					640
Phe	Glu	Glu	Ser	Gly	Tyr	Thr	Phe	Ile	Ala	Pro	Arg	Glu	Tyr	Cys	Asn
				645					650					655	
Asp	Leu	Lys	Pro	Ser	Asp	Asn	Asn	Thr	Glu	Phe	Leu	Leu	Asn	Phe	Asn
			660					665					670		
Glu	Phe	Ile	Asp	Arg	Lys	Thr	Pro	Asn	Asn	Pro	Ser	Cys	Asn	Thr	Asp
		675					680					685			
Leu	Ile	Asn	Arg	Ile	Leu	Leu	Asp	Ala	Gly	Phe	Thr	Asn	Glu	Leu	Val
	690					695					700				
Gln	Asn	Tyr	Trp	Ser	Lys	Gln	Lys	Asn	Ile	Lys	Gly	Val	Lys	Ala	Arg
705					710					715					720
Phe	Val	Val	Thr	Asp	Gly	Gly	Ile	Thr	Arg	Val	Tyr	Pro	Lys	Glu	Ala
				725					730					735	
Gly	Glu	Asn	Trp	Gln	Glu	Asn	Pro	Glu	Thr	Tyr	Glu	Asp	Ser	Phe	Tyr
			740					745					750		
Lys	Arg	Ser	Leu	Asp	Asn	Asp	Asn	Tyr	Val	Phe	Thr	Ala	Pro	Tyr	Phe
		755					760					765			
Asn	Lys	Ser	Gly	Pro	Gly	Ala	Tyr	Glu	Ser	Gly	Ile	Met	Val	Ser	Lys
	770					775					780				
Ala	Val	Glu	Leu	Tyr	Ile	Gln	Gly	Lys	Leu	Leu	Lys	Pro	Ala	Val	Val
785					790					795					800
Gly	Ile	Lys	Ile	Asp	Val	Asn	Ser	Trp	Ile	Glu	Asn	Phe	Thr	Lys	Thr
				805					810					815	
Ser	Ile	Arg	Asp	Pro	Cys	Ala	Gly	Pro	Val	Cys	Asp	Cys	Lys	Arg	Asn
			820					825					830		
Ser	Asp	Val	Met	Asp	Cys	Val	Ile	Leu	Asp	Asp	Gly	Gly	Phe	Leu	Leu
		835					840					845			
Met	Ala	Asn	His	Asp	Asp	Tyr	Thr	Asn	Gln	Ile	Gly	Arg	Phe	Phe	Gly
	850					855					860				

20557A US Sequence Listing as filed

Glu Ile Asp Pro Arg Met Met Arg His Leu Val Asn Ile Ser Leu Tyr  
865 870 875 880

Ala Phe Asn Lys Ser Tyr Asp Tyr Gln Ser Val Cys Asp Pro Gly Ala  
885 890 895

Ala Pro Lys Gln Gly Ala Gly His Arg Ser Ala Tyr Val Pro Ser Ile  
900 905 910

Thr Asp Ile Leu Gln Ile Gly Trp Trp Ala Thr Ala Ala Ala Trp Ser  
915 920 925

Ile Leu Gln Gln Leu Leu Leu Ser Leu Thr Phe Pro Arg Leu Leu Glu  
930 935 940

Ala Val Glu Met Glu Glu Asp Asp Phe Thr Ala Ser Leu Ser Lys Gln  
945 950 955 960

Ser Cys Ile Thr Glu Gln Thr Gln Tyr Phe Phe Lys Asn Asp Thr Lys  
965 970 975

Ser Phe Ser Gly Leu Leu Asp Cys Gly Asn Cys Ser Arg Ile Phe His  
980 985 990

Val Glu Lys Leu Met Asn Thr Asn Leu Val Phe Ile Met Val Glu Ser  
995 1000 1005

Lys Gly Thr Cys Pro Cys Asp Thr Arg Leu Leu Met Gln Ala Glu  
1010 1015 1020

Gln Thr Ser Asp Gly Pro Asp Pro Cys Asp Met Val Lys Gln Pro  
1025 1030 1035

Arg Tyr Arg Lys Gly Pro Asp Val Cys Phe Asp Asn Asn Val Leu  
1040 1045 1050

Glu Asp Tyr Thr Asp Cys Gly Gly Val Ser Gly Leu Asn Pro Ser  
1055 1060 1065

Leu Trp Ser Ile Phe Gly Leu Gln Phe Ile Leu Leu Trp Leu Val  
1070 1075 1080

Ser Gly Ser Arg His Tyr Leu Trp  
1085 1090

<210> 31  
<211> 1091

20557A US Sequence Listing as filed

<212> PRT

<213> Sus scrofa

<400> 31

Met Ala Ala Gly Cys Leu Leu Ala Leu Thr Leu Thr Leu Phe Gln Ser  
1 5 10 15

Leu Leu Ile Gly Pro Ser Ser Gln Glu Pro Phe Pro Ser Ala Val Thr  
20 25 30

Ile Lys Ser Trp Val Asp Lys Met Gln Glu Asp Leu Val Thr Leu Ala  
35 40 45

Lys Thr Ala Ser Gly Val Asn Gln Leu Val Asp Ile Tyr Glu Lys Tyr  
50 55 60

Gln Asp Leu Tyr Thr Val Glu Pro Asn Asn Ala Arg Gln Leu Val Glu  
65 70 75 80

Ile Ala Ala Arg Asp Ile Glu Lys Leu Leu Ser Asn Arg Ser Lys Ala  
85 90 95

Leu Val Arg Leu Ala Leu Glu Ala Glu Lys Val Gln Ala Ala His Gln  
100 105 110

Trp Arg Glu Asp Phe Ala Ser Asn Glu Val Val Tyr Tyr Asn Ala Lys  
115 120 125

Asp Asp Leu Asp Pro Glu Lys Asn Asp Ser Glu Pro Gly Ser Gln Arg  
130 135 140

Ile Lys Pro Val Phe Ile Asp Asp Ala Asn Phe Gly Arg Gln Ile Ser  
145 150 155 160

Tyr Gln His Ala Ala Val His Ile Pro Thr Asp Ile Tyr Glu Gly Ser  
165 170 175

Thr Ile Val Leu Asn Glu Leu Asn Trp Thr Ser Ala Leu Asp Glu Val  
180 185 190

Phe Lys Lys Asn Arg Glu Glu Asp Pro Ser Leu Leu Trp Gln Val Phe  
195 200 205

Gly Ser Ala Thr Gly Leu Ala Arg Tyr Tyr Pro Ala Ser Pro Trp Val  
210 215 220

Asp Asn Ser Arg Thr Pro Asn Lys Ile Asp Leu Tyr Asp Val Arg Arg  
225 230 235 240

20557A US Sequence Listing as filed

Arg Pro Trp Tyr Ile Gln Gly Ala Ala Ser Pro Lys Asp Met Leu Ile  
245 250 255

Leu Val Asp Val Ser Gly Ser Val Ser Gly Leu Thr Leu Lys Leu Ile  
260 265 270

Arg Thr Ser Val Ser Glu Met Leu Glu Thr Leu Ser Asp Asp Asp Phe  
275 280 285

Val Asn Val Ala Ser Phe Asn Ser Asn Ala Gln Asp Val Ser Cys Phe  
290 295 300

Gln His Leu Val Gln Ala Asn Val Arg Asn Lys Lys Val Leu Lys Asp  
305 310 315 320

Ala Val Asn Asn Ile Thr Ala Lys Gly Ile Thr Asp Tyr Lys Lys Gly  
325 330 335

Phe Ser Phe Ala Phe Glu Gln Leu Leu Asn Tyr Asn Val Ser Arg Ala  
340 345 350

Asn Cys Asn Lys Ile Ile Met Leu Phe Thr Asp Gly Gly Glu Glu Arg  
355 360 365

Ala Gln Glu Ile Phe Ala Lys Tyr Asn Lys Asp Lys Lys Val Arg Val  
370 375 380

Phe Thr Phe Ser Val Gly Gln His Asn Tyr Asp Arg Gly Pro Ile Gln  
385 390 395 400

Trp Met Ala Cys Glu Asn Lys Gly Tyr Tyr Tyr Glu Ile Pro Ser Ile  
405 410 415

Gly Ala Ile Arg Ile Asn Thr Gln Glu Tyr Leu Asp Val Leu Gly Arg  
420 425 430

Pro Met Val Leu Ala Gly Asp Lys Ala Lys Gln Val Gln Trp Thr Asn  
435 440 445

Val Tyr Leu Asp Ala Leu Glu Leu Gly Leu Val Ile Thr Gly Thr Leu  
450 455 460

Pro Val Phe Asn Ile Thr Gly Gln Asn Glu Asn Lys Thr Asn Leu Lys  
465 470 475 480

Asn Gln Leu Ile Leu Gly Val Met Gly Val Asp Val Ser Leu Glu Asp  
485 490 495

## 20557A US Sequence Listing as filed

485

490

495

Ile Lys Arg Leu Thr Pro Arg Phe Thr Leu Cys Pro Asn Gly Tyr Tyr  
                   500                  505                  510

Phe Ala Ile Asp Pro Asn Gly Tyr Val Leu Leu His Pro Asn Leu Gln  
                   515                  520                  525

Pro Lys Asn Pro Lys Ser Gln Glu Pro Val Thr Leu Asp Phe Leu Asp  
           530                  535                  540

Ala Glu Leu Glu Asn Asp Ile Lys Val Glu Ile Arg Asn Lys Met Ile  
   545                  550                  555                  560

Asp Gly Glu Ser Gly Glu Lys Thr Phe Arg Thr Leu Val Lys Ser Gln  
                   565                  570                  575

Asp Glu Arg Tyr Ile Asp Lys Gly Asn Arg Thr Tyr Thr Trp Thr Pro  
                   580                  585                  590

Val Asn Gly Thr Asp Tyr Ser Leu Ala Leu Val Leu Pro Thr Tyr Ser  
           595                  600                  605

Phe Tyr Tyr Ile Lys Ala Lys Ile Glu Glu Thr Ile Thr Gln Ala Arg  
   610                  615                  620

Ser Lys Lys Gly Lys Met Lys Asp Ser Glu Thr Leu Lys Pro Asp Asn  
   625                  630                  635                  640

Phe Glu Glu Ser Gly Tyr Thr Phe Ile Ala Pro Arg Asp Tyr Cys Asn  
                   645                  650                  655

Asp Leu Lys Ile Ser Asp Asn Asn Thr Glu Phe Leu Leu Asn Phe Asn  
                   660                  665                  670

Glu Phe Ile Asp Arg Lys Thr Pro Asn Asn Pro Ser Cys Asn Thr Asp  
           675                  680                  685

Leu Ile Asn Arg Val Leu Leu Asp Ala Gly Phe Thr Asn Glu Leu Val  
   690                  695                  700

Gln Asn Tyr Trp Ser Lys Gln Lys Asn Ile Lys Gly Val Lys Ala Arg  
   705                  710                  715                  720

Phe Val Val Thr Asp Gly Gly Ile Thr Arg Val Tyr Pro Lys Glu Ala  
                   725                  730                  735

20557A US Sequence Listing as filed

Gly Glu Asn Trp Gln Glu Asn Pro Glu Thr Tyr Glu Asp Ser Phe Tyr  
740 745 750

Lys Arg Ser Leu Asp Asn Asp Asn Tyr Val Phe Thr Ala Pro Tyr Phe  
755 760 765

Asn Lys Ser Gly Pro Gly Ala Tyr Glu Ser Gly Ile Met Val Ser Lys  
770 775 780

Ala Val Glu Ile Tyr Ile Gln Gly Lys Leu Leu Lys Pro Ala Val Val  
785 790 795 800

Gly Ile Lys Ile Asp Val Asn Ser Trp Ile Glu Asn Phe Thr Lys Thr  
805 810 815

Ser Ile Arg Asp Pro Cys Ala Gly Pro Val Cys Asp Cys Lys Arg Asn  
820 825 830

Ser Asp Val Met Asp Cys Val Ile Leu Asp Asp Gly Gly Phe Leu Leu  
835 840 845

Met Ala Asn His Asp Asp Tyr Thr Asn Gln Ile Gly Arg Phe Phe Gly  
850 855 860

Glu Ile Asp Pro Ser Leu Met Arg His Leu Val Asn Ile Ser Val Tyr  
865 870 875 880

Ala Phe Asn Lys Ser Tyr Asp Tyr Gln Ser Val Cys Glu Pro Gly Ala  
885 890 895

Ala Pro Lys Gln Gly Ala Gly His Arg Ser Ala Tyr Val Pro Ser Ile  
900 905 910

Ala Asp Ile Leu His Ile Gly Trp Trp Ala Thr Ala Ala Ala Trp Ser  
915 920 925

Ile Leu Gln Gln Phe Leu Leu Ser Leu Thr Phe Pro Arg Leu Leu Glu  
930 935 940

Ala Val Glu Met Glu Asp Asp Asp Phe Thr Ala Ser Leu Ser Lys Gln  
945 950 955 960

Ser Cys Ile Thr Glu Gln Thr Gln Tyr Phe Phe Asp Asn Asp Ser Lys  
965 970 975

Ser Phe Ser Gly Val Leu Asp Cys Gly Asn Cys Ser Arg Ile Phe His  
980 985 990

20557A US Sequence Listing as filed

Val Glu Lys Leu Met Asn Thr Asn Leu Ile Phe Ile Met Val Glu Ser  
 995 1000 1005

Lys Gly Thr Cys Pro Cys Asp Thr Arg Leu Leu Ile Gln Ala Glu  
 1010 1015 1020

Gln Thr Ser Asp Gly Pro Asp Pro Cys Asp Met Val Lys Gln Pro  
 1025 1030 1035

Arg Tyr Arg Lys Gly Pro Asp Val Cys Phe Asp Asn Asn Ala Leu  
 1040 1045 1050

Glu Asp Tyr Thr Asp Cys Gly Gly Val Ser Gly Leu Asn Pro Ser  
 1055 1060 1065

Leu Trp Ser Ile Phe Gly Ile Gln Cys Val Leu Leu Trp Leu Leu  
 1070 1075 1080

Ser Gly Ser Arg His Tyr Gln Leu  
 1085 1090